Santa Clara Valley
Water District

FINAL

Field Program Documentation and Findings

Indirect Potable Reuse Groundwater Studies

December 2017

Prepared for:
Santa Clara Valley Water District

Prepared By:

2490 Mariner Square Loop, Suite 215
TODD
GROUNDWATER
Alameda, CA 94501
510 747 6920
toddgroundwater.com

SIGNATURE PAGE

CERTIFIED HYDROGEOLOGIST
SALLY
McCRAVEN
No. 356
Exp. 12/31/18
STATE OF CALIFORNIA

Sally McCraven

Sally McCraven, PG, CHg, CEG
Principal Hydrogeologist

CERTIFIED HYDROGEOLOGIST
CHAD
N.
TAYLOR
No.915
STATE OF CALIFORNIA

Chad Taylor, PG, CHg
Senior Hydrogeologist

CERTIFIED HYDROGEOLOGIST
EDWIN
H.
LIN
No. 907
Exp. 6/30/18
STATE OF CALIFORNIA

Edwin

Edwin Lin, PG, CHg
Principal Hydrogeologist

CERTIFIED HYDROGEOLOGIST
WILLIAM
E.
MOTZER
No. 952
Exp. 7/31/18
STATE OF CALIFORNIA

William E. Motzer

William Motzer, PhD, PG, CHg
Senior Geochemist

Mahoney

John J. Mahoney, PhD
Principal Geochemist
Mahoney Geochemical Consulting, LLC

Table of Contents

Page

Executive Summary ES 1

1 Introduction 1

2 Ford Pond Background and Field Investigations Overview 2

3 Los Gatos Ponds Background and Field Investigations Overview 3

4 CPT and Sonic Boring Lithology 4
  4.1 CPT Lithology 4
  4.2 Sonic Boring Drilling and Lithology 4

5 Ford Pond Area Hydraulic Parameter Laboratory Testing 6

6 Ford Pond Area Infiltration Testing 8
  6.1 Historical Ford Pond Site Recharge Operations 9
  6.2 Infiltration Field Tests 10
    6.2.1 Temporary Infiltration Test Basins 10
    6.2.2 Water Supply, Conveyance, and Control 10
    6.2.3 Temporary Monitoring Well Installation 11
  6.3 Ford Pond Area Infiltration Field Test Results 12
    6.3.1 Test Operation and Data Collection 12
    6.3.2 Infiltration Rates 16
    6.3.3 Effects on Groundwater 16
    6.3.4 Existing Ford Pond Fill from Coyote Creek Flooding 17
    6.3.5 Pond Requirements for Purified Water Recharge 18
    6.3.6 Potential for Recharged Water to Discharge to Coyote Creek 19
    6.3.7 Infiltration Test Conclusions 20

7 Morgan Park Multi-Completion Monitoring Well Installation and Testing 23
  7.1 Preliminary Well Drilling Activities 24
    7.1.1 Technical Specifications 24
    7.1.2 Well Location Selection 25
    7.1.3 Noise and Traffic Control 25
    7.1.4 Well Drilling Permits 25
    7.1.5 Utility Clearance 25
  7.2 Sonic Borehole Drilling and Geologic Logging 26
    7.2.1 Sonic Borehole Geophysical Logging and Monitoring Wells Design 26
  7.3 Reverse Mud Rotary Borehole Drilling 27
  7.4 Monitoring Well Installation and Development 27
    7.4.1 Sonic Borehole Monitoring Well Installations 27

7.4.2 Reverse Mud Rotary Borehole Well Installations 29
7.4.3 Monitoring Well Development 29
7.4.4 Well Completions 30
7.5 Morgan Park Multi-Completion Well Groundwater Water Quality Sampling 30
7.5.1 Well Purging and Sample Collection 30
7.5.2 Laboratory Analyses 31
7.5.3 Water Quality Results... 34
7.5.4 Water Quality Conclusions 34

8 Dissolution Testing.. 36
8.1 Soil Quality Sampling 37
8.2 Purified Source Water and Stabilized (Buffered) Purified Water Results 38
8.3 Modified SPLP Soil Leaching Test Results.. 40
8.4 Ha-HCl Extraction Soil Testing 41
8.5 Geochemical Modeling 43
8.5.1 Complexation Model within PHREEQC 44
8.5.2 Transport Modeling... 45
8.5.3 Groundwater Chemistry.. 47
8.6 Dissolution Study Conclusions 49

9 References 51

List of Tables

Page

Table 1 Porosity Testing Results 7
Table 2 Basin 1 Infiltration Test Results 14
Table 3 Basin 2 Infiltration Test Results 15
Table 4 Morgan Park Monitoring Well Construction 28
Table 5 Constituents Sampled 31
Table 6 Morgan Park Wells Groundwater Quality Results 32
Table 7 Chemical Detections in Soil Samples 37
Table 8 Target Stabilized Recycled Water Quality 39
Table 9 Measured Stabilized Recycled Water Quality 39
Table 10 Summary of Selected Metals for SPLP Soil Leachate 42
Table 11 Summary of Ha-HCl Extraction Test Results 46
Table 12 Summary of Saturation Index Calculations for Selected Species for Morgan Park Groundwater 48

List of Figures

Figure 1 Study Area
Figure 2 CPT and Sonic Borings, Ford Pond Area
Figure 3 Los Gatos Ponds Sonic Borings
Figure 4 Ford Pond Area CPT-1
Figure 5 Ford Pond Area CPT-2
Figure 6 Ford Pond Area CPT-3
Figure 7 Ford Pond Area CPT-4
Figure 8 Ford Pond Area CPT-5
Figure 9 Ford Pond Area Sonic 1, 2, and 3 Logs
Figure 10 Page Ponds Sonic 4 Boring Log
Figure 11 McGlincy Ponds Sonic 5 Boring Log
Figure 12 Ford Pond Area Infiltration Potential Investigation Area
Figure 13 Generalized Ford Pond Area Cross Section
Figure 14 Historical Operation of Ford Pond
Figure 15 Ford Pond Area Infiltration Testing Facility Layout
Figure 16 Infiltration Rate in Test Basin 1
Figure 17 Infiltration Rate in Test Basin 2
Figure 18 Groundwater Depth and Creek Discharge Near Test Basins
Figure 19 Discharge in Coyote Creek during Flood Event that filled Ford Pond
Figure 20 Photographs of Ford Pond Flooded from Coyote Creek
Figure 21 Morgan Park Monitoring Well

Figure 22 Recommended Area for Monitoring Wells, Los Gatos Ponds
Figure 23 Morgan Park Monitoring Well Geologic, Geophysical and Well Construction Logs
Figure 24 Morgan Park Wells Piper and Stiff Diagrams
Figure 25 Manganese Eh/pH Diagram
Figure 26 Cation/Anion Adsorption on Ferric Oxide
Figure 27 $Cr(OH)_3(A)$ Solubility

List of Appendices

Appendix A Field Work Program Details Ford Pond Area and Los Gatos Ponds CPT and Sonic Borings and Ford Pond Area Infiltration Testing
Appendix B District Permits for Vadose Zone Borings
Appendix C Todd Groundwater Health and Safety Plan
Appendix D Gregg Drilling CPT Report
Appendix E Vadose Zone Sonic Boring Logs
Appendix F Cooper Testing Laboratory Report
Appendix G Ford Pond Area Infiltration Test Monitoring Well Logs and Field Abandonment Forms
Appendix H Morgan Park Monitoring Wells Technical Specifications
Appendix I Morgan Park Monitoring Wells Permits
Appendix J Morgan Park Monitoring Wells Development Documentation (Cascade)
Appendix K Morgan Park Monitoring Well Survey Information
Appendix L Morgan Park Monitoring Wells DWR Well Completion Reports
Appendix M Morgan Park Monitoring Wells Completion Notices
Appendix N Morgan Park Monitoring Wells Groundwater Quality Field Sampling Sheets (Blaine)
Appendix O Alpha Analytical Reports for Morgan Park Monitoring Wells Water Quality Sampling
Appendix P McCampbell Analytical, Inc. and Santa Clara Valley Water District Analytical Reports
Appendix Q Todd Groundwater Directions for McCampbell Analytical, Inc. for SPLP Leaching and Ha-HCl Extraction Work
Appendix R Dissolution Sampling Summary Results Tables
  Table R-1 Sonic 1 (Ford Pond Area) Soil Core Sampling Results
  Table R-2 Sonic 2 (Ford Pond Area) Soil Core Sampling Results
  Table R-3 Sonic 3 (Ford Pond Area) Soil Core Sampling Results
  Table R-4 Sonic 4 (Page Ponds) Soil Core Sampling Results

Table R-5 Sonic 5 (McGlincy Ponds) Soil Core Sampling Results
Table R-6 Pre-Buffering Purified Water Analysis by Santa Clara Valley Water District
Table R-7 Pre-Buffering Purified Water Analysis by McCampbell
Table R-8 Stabilized Purified Water Results
Table R-9 Sonic 1 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-10 Sonic 2 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-11 Sonic 3 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-12 Sonic 4 (Page Ponds) Soil Core SPLP Leachate Results
Table R-13 Sonic 5 (McGlincy Ponds) Soil Core SPLP Leachate Results
Table R-14 Morgan Park Soil Core SPLP Leachate Results
Table R-15 Sonic 1 (Ford Pond Area) Soil Core HH Sample Results
Table R-16 Sonic 2 (Ford Pond Area) Soil Core HH Sample Results
Table R-17 Sonic 3 (Ford Pond Area) Soil Core HH Sample Results
Table R-18 Sonic 4 (Page Ponds) Soil Core HH Sample Results
Table R-19 Sonic 5 (McGlincy Ponds) Soil Core HH Sample Results
Table R-20 Morgan Park Soil Core HH Sample Results
Appendix S Mahoney Geochemical Consulting, LLC Technical Memorandum

List of Acronyms

AF	acre-feet
AFD	acre-feet per day
AFY	acre-feet per year
AOP	advanced oxidation process
API	American Petroleum Institute
ASTM	American Society for Testing and Materials International
Blaine	Blaine Tech Services
$CaCl_2$	calcium chloride
$CaCO_3$	calcium carbonate
Cascade	Cascade Drilling, LP
CCR	California Code of Regulations
CDM	CDM Smith
CL	inorganic clays
cm/s	centimeters per second
$CO_2(g)$	carbon dioxide gas
CPT	Cone Penetrometer Testing
Cr_2O_3	trivalent chromium oxide
Cr^{+3}	trivalent chromium
Cr^{+6}	hexavalent chromium
$Cr(OH)_3(A)$	chromium hydroxide (amorphous)
DBCP	1,2-dibromo-3-chloropropane
1,1-DCE	1,1-dichloroethene
DDW	Division of Drinking Water
District	Santa Clara Valley Water District
EDB	ethylene dibromide
Eh	oxidation
ft/d	feet per day
ft/s	feet per second
ft-bgs	feet below ground surface
GC	clayey gravel, gravel-sand-silt mixtures
GM	silty gravel, gravel-sand-silt mixtures
GP	poorly graded gravels, gravel-sand mixtures, little or no fines
GPS	global positioning system
gpm	gallons per minute
Gregg Drilling	Gregg Drilling and Testing, Inc.
GRRP	Groundwater Replenishment Reuse Project
Ha-HCl	hydroxylamine-hydrochloride
HDR	HDR, Inc.
HFO	hydrous ferric oxide
HMO	hydrous manganese oxide
IPR	indirect potable reuse
LI	Langelier Index

Mahoney	Mahoney Geochemical Consulting
McCampbell	McCampbell Analytical, Inc.
MCL	maximum contaminant level
MF	microfiltration
mg/L	milligrams per liter
ML	inorganic silts
Na_2CO_3	sodium carbonate
NAOH	sodium hydroxide
NTU	nephelometric turbidity units
OCWD	Orange County Water District
ORP	oxidation-reduction potential
PCE	tetrachloroethene
pE	redox potential where pE = Eh/0.0591v
pH_{pzc}	pH point where positive and negative ionic charges balance
PVC	polyvinyl chloride
RMC	RMC Water and Environment
RO	reverse osmosis
SCVAWPC	Silicon Valley Advanced Water Purification Center
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SI	Saturation Index
SICM	Surface ionization and complexation models
SM	silty sands, sand-silt mixtures
SMCL	secondary maximum contaminant level
SP	spontaneous potential
SPLP	synthetic precipitation leaching potential
SVOCs	semi-volatile organic compounds
SWRCB	State Water Resources Control Board
1,1,1-TCA	1,1,1-trichloroethane
TDS	total dissolved solids
Todd	Todd Groundwater
µg/L	micrograms per liter
µm	micrometer
USA	Underground Services Alert
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
UV	ultraviolet light
VOCs	volatile organic compounds
WC	Woodard and Curran

Executive Summary

Field Program Overview

Santa Clara Valley Water District's (District's) long-term water supply plans identify recycled and purified water sources as significant water supply additions for the County of Santa Clara, leading up to an additional 30,000 acre-feet (AF) of new supplies by 2035. Indirect potable reuse (IPR) projects could provide capability for up to 45,000 acre-feet per year (AFY) of IPR using purified water to supplement groundwater recharge from other existing sources (imported and local surface water).

Todd Groundwater (Todd) was retained by the District to conduct groundwater studies, including subsurface investigations, infiltration testing, multi-completion monitoring well installation and testing and dissolution studies (among other tasks) to evaluate the feasibility and effects of proposed IPR projects on groundwater. This report documents those field investigations and findings.

The investigations focused on two potential IPR sites: the existing Los Gatos Recharge Ponds (Los Gatos Ponds) and the existing Ford Recharge Pond (Ford Pond), both located in the recharge area of the Santa Clara Plain Subbasin.

Ford Pond Area Infiltration Testing

The Ford Pond area infiltration testing evaluated the potential for recharge of up to 4,200 AFY of advanced-treated recycled water (purified water) through surface spreading in the existing Ford off-channel pond and a potential new pond or ponds constructed on the adjacent County-owned property. This study included data collection and analysis of:

- Historical Ford Pond site operations,
- Sonic borings and soil samples for analysis of aquifer properties to assess the infiltration capacity of the Site,
- Cone penetrometer (CPT) soundings to characterize lithology and depth to groundwater, and
- Two 10-day concurrent infiltration tests at the Ford Pond site and adjacent County-owner parcel to further assess infiltration capacity.

The study showed that the Ford Pond site and adjacent County-owned property (referred to as Ford Pond site or Ford Pond area) have good recharge potential. Historically-observed infiltration rates at the Ford Pond site averaged 1.3 feet per day (ft/day) and ranged from 0.2 ft/day to as high as 7.2 ft/day and the infiltration testing showed rates over 10 ft/day.

The data and analysis indicated that the existing Ford Pond alone is likely adequate to recharge 4,200 AFY; however, multiple ponds would provide more flexibility for maintenance.

Based on historical observations, recharge water in the Ford Pond can discharge to the adjacent Coyote Creek. Flow calculations conducted for this study indicate that between 4 and 16.5 percent of the total volume of purified water recharged could potentially discharge to the creek under steady state recharge conditions. This ratio could rise as high as 26 percent of the total water recharged if water is pooled up to five feet high within the recharge basin.

Morgan Park Monitoring Wells

Multi-completion monitoring wells (including 5 screened intervals) were installed in two borings located downgradient of Budd Ponds (part of the Los Gatos Ponds system) in John D. Morgan Park. Since the Los Gatos Ponds are a potential IPR site, these monitoring wells were installed to fulfill one State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW) monitoring well requirement related to replenishment with recycled water.

The wells provide groundwater level and groundwater quality monitoring points at varying depths downgradient of the Los Gatos Ponds. If IPR is implemented at the Los Gatos Ponds, the wells will be used to provide one year of quarterly baseline and ongoing groundwater monitoring in compliance with DDW regulations.

The installation and testing of the Morgan Park monitoring wells were completed in several stages, including planning, preconstruction meetings, sonic borehole drilling, geophysical logging, mud rotary borehole drilling, well construction, well development, and soil and groundwater quality sampling.

Initial groundwater quality sampling indicates that in general groundwater quality is good. Low levels (just at or below applicable maximum contaminant levels (MCL)) of volatile organic compounds were detected and thought to be associated with an environmental release site in the area.

Dissolution Studies

Dissolution studies were conducted to determine if the purified water used for IPR could react with alluvial sediments to cause the dissolution or leaching of metals into groundwater. The District provided purified water samples for the leaching analysis. Four buffered purified water solutions (identified as Doses 1, 2, 3, and 4) were prepared by the laboratory and used for the leaching tests. The chemical dosages for preparation of the buffered solutions were developed by HDR, Inc. (HDR), a District consultant, with the dual objectives of protecting the purified water transmission piping and fittings from corrosion and preventing dissolution of harmful constituents from aquifer materials into groundwater (HDR, 2017). Two rounds of soil testing were conducted. The first round included vadose zone soil samples collected from the Ford Pond and Los Gatos Ponds sites. The second round of sampling included saturated zone soil samples collected during drilling of the Morgan Park monitoring wells. Prior to the first round of dissolution testing, HDR developed two buffering strategies (Doses 1 and 2). Both had the same target pH of 8.5 but used different alkalinity agents (sodium carbonate and sodium hydroxide). pH is the primary characteristic controlling dissolution of naturally-occurring metals in the soil. The first round of dissolution testing indicated that a pH 8.5 resulted in hexavalent chromium (Cr^{+6}) in leachate approaching but less than the former MCL of 10 micrograms per liter (µg/L). The MCL was invalidated by the Superior Court of Sacramento County effective September 11, 2017. For the second phase of testing, pHs of 8.0 and 8.5, Doses 3 and 4, respectively, were established as targets using only one alkalinity agent (sodium carbonate) to test a range of pHs.

Cr^{+6} was not detected at elevated concentrations in leachate from the second round of sampling.

For the dissolution study, modified synthetic precipitation leaching procedure (SPLP) tests were conducted. Testing of the purified water prior to buffering showed all metals were below reporting limits. Metal concentrations in leachate (including antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, uranium, vanadium and zinc) were generally low (concentrations of all leachates were less than 0.2 milligrams per liter (mg/L)). Most samples showed concentrations below 0.10 mg/L, providing strong evidence that interaction of buffered purified water and alluvial sediments will not result in significant leaching of metals to groundwater. Arsenic has been a particular focus of other leaching studies at active IPR sites in California. While arsenic was also leached from the sediments in this study, concentrations were low, and in many cases, values were below detection limits. Cr^{+6} was the only metal detected at concentrations approaching its former MCL. Cr^{+6} is known to occur in source rocks comprising the Santa Clara Basin. Cr^{+6} was at concentrations of 6.6 and 6.8 μg/L in two of 29 samples tested. The two relatively elevated detections were from one boring drilled at the Ford Pond Site at one depth of 10 feet below ground surface (ft-bgs), one resulting from Dose 1 and the other from Dose 2. The generally low concentrations of Cr^{+6} detected in the majority of the samples suggest that most chromium in the sediments are not in "hexavalent" form, but rather are in trivalent form. This is supported by results of hydroxylamine-hydrochloride extraction tests.

Supported by PHREEQC geochemical modeling results, the distribution of chromium concentrations is strongly correlated to pH. For pH values greater than 8.3, concentrations increase with increasing pH. Based on the analysis, it is recommended that the pH value for purified recycled water delivered to IPR sites be maintained at or below 8.0. Higher hardness and lower alkalinity concentrations may also be warranted when conditioning the purified water to reduce its leaching potential prior to infiltration or injection.

For the five groundwater samples collected from the Morgan Park wells, PHREEQC saturation index calculations support the dominance of trivalent chromium, indicating that Cr^{+6} is not as stable and will not increase in solution under the measured conditions.

1 Introduction

The District's long-term water supply plans identify recycled and purified water sources as significant water supply additions for the County of Santa Clara, leading up to an additional 30,000 AF of new supplies by 2035. IPR projects could provide capability for up to 45,000 AFY of IPR using purified water to supplement groundwater recharge from other existing sources (imported and local stored water).

Todd has been retained by the District to conduct groundwater studies, including numerical modeling, subsurface investigations, infiltration testing, and dissolution studies, to evaluate the feasibility and effects of proposed IPR projects on groundwater. In addition, Todd supported the District in installation and testing of a multi-completion monitoring well site installed downgradient of the Los Gatos Ponds.

This report documents the field program conducted to support the IPR groundwater studies and associated analysis and findings. **Figure 1** shows the locations of two potential IPR recharge sites where field activities were conducted. The sites include the Los Gatos Ponds and the Ford Pond, both located in the recharge area of the Santa Clara Plain, which excludes the Coyote Valley Area. The field program included:

- Sonic borings and collection of soil samples for analysis of aquifer properties to assess the infiltration capacity of the Ford Pond site;
- Collection of cone penetrometer (CPT) soundings on the Ford Pond site to characterize lithology;
- Two 10-day concurrent infiltration tests at the Ford Pond site and an adjacent property owned by Santa Clara County Parks to further assess infiltration capacity;
- Sonic borings and collection of vadose zone soil samples from borings at the Ford Pond and Los Gatos Ponds sites for vadose zone soil quality sampling, dissolution analysis and lithologic characterization; and
- Installation of a multi-completion monitoring well site just downgradient of the Los Gatos Ponds to provide monitoring of potential recycled water recharge including
    - Collection of saturated zone samples from one well boring for dissolution analysis, and
    - Collection of groundwater samples from the wells for water quality analysis

The IPR groundwater studies field program activities, analyses and findings are presented below.

2 Ford Pond Background and Field Investigations Overview

As originally envisioned, the Ford Pond Expansion Study was to include identification of three separate parcels in the vicinity of the existing Ford Pond Site by the Woodard and Curran (formerly RMC Water and Environment) and CDM Smith (WC/CDM) team (conducting related IPR work under a separate contract with the District), which would be assessed for recharge potential by Todd through a field investigation program. Following the WC/CDM review of prospective sites, field investigation and preliminary analysis, one site was to be selected as optimal for managed aquifer recharge with purified water. Several potential recharge sites as well as injection well sites in the vicinity of the Ford Pond site were preliminarily identified by WC/CDM and modeled by Todd to assess travel time to downgradient potable water supply wells. Ultimately, it was decided that only the existing Ford Pond site and an adjacent property owned by Santa Clara County Parks were accessible for recharge and no field investigations were conducted at any other sites in the vicinity of the Ford Pond site.

The Ford Pond site has historically been used by the District for recharge of stormwater and imported water released from Anderson Reservoir or delivered to Coyote Creek from the Main Avenue pipeline or San Luis Reservoir via the Santa Clara Conduit. Historically, recharge occurred behind three instream gravel dams in Coyote Creek and one off-channel percolation pond. Fish structures were installed and managed for each of the dams. The dam structures and fish passages were severely damaged during the high creek flows during spills of Anderson Dam during the very wet El Niño season of 1998/1999 and the instream dams are no longer in operation. The gravel dams were not reinstalled following the damage and will not be part of the spreading grounds in the future. The off-channel pond is also not currently used for recharge operations. The total surface area of the four recharge facilities was approximately 34 acres with a potential recharge rate of about 10,000 AFY. The existing Ford Pond alone has a recharge area of approximately 4.7 acres. A table provided by the District of facility recharge between 1996 and 1998 indicated a range of recharge rates between 0.2 and 7.2 feet per day.

This study evaluated the potential for recharge with up to 4,200 AFY of purified water in the existing Ford off-channel pond and a new pond or ponds constructed on the County Parks-owned property. **Figure 2** shows the area of the existing Ford pond and the County Parks-owned parcel property boundary. The field program at the combined site included CPT soundings to characterize site lithology, sonic borings to characterize lithology and collect soil cores used to assess aquifer parameters and dissolution characteristics, and two concurrent 10-day infiltration tests in the existing Ford pond and a second excavation on the County Parks-owned parcel, including two temporary monitoring wells at the test sites. **Figure 2** also shows the locations of sonic and CPT borings.

3 Los Gatos Ponds Background and Field Investigations Overview

The Los Gatos Recharge System receives imported water via the Central Pipeline and local stormwater released from the Lexington and Vasona Reservoirs. The Los Gatos Ponds include Oka, Camden, Page, Sunnyoaks, Budd, and McGlincy. The Los Gatos Ponds are reported to have a recharge capacity of about 23,800 AFY (Recharge Capacity by Facility and Zone table provided by the District). From 2007 through 2010, average recharge in the Los Gatos Ponds was 21,000 AFY. As originally conceived in the South Bay Water Recycling Strategic and Master Planning Report (RMC/CDM Smith, 2014), up to 20,000 AFY of purified water would potentially be recharged in the Sunnyoaks, Budd, Page and McGlincy Ponds. Currently, the District is considering using all six of the Los Gatos Ponds for recharge with purified recycled water.

The field program at and downgradient of the Los Gatos Ponds included two vadose zone sonic borings for collection of soil samples for dissolution testing and installation of a multi-completion monitoring well site downgradient of the Budd Pond for collection of saturated zone samples for dissolution testing and groundwater quality sampling. The Los Gatos Ponds layout is shown in **Figure 3** along with the locations of sonic borings and multi-completion monitoring well site.

4 CPT and Sonic Boring Lithology

4.1 CPT Lithology

The CPT and sonic boring lithology is described in this section. Additional details regarding the field permitting and data collection process are included in **Appendix A**.

CPT is a method in which soil characteristics are determined when a cone penetrometer probe is hydraulically driven into subsurface soils. CPT can be used to estimate relative soil stratigraphy, density, strength, and hydrogeologic properties from the probe that measures static and dynamic pore pressure, from which hydraulic conductivity can be estimated. The CPT work was performed by Gregg Drilling & Testing Inc. of Martinez, California (Gregg Drilling) who employ specially designed CPT trucks designed and built by the company. These trucks provide at least 30-tons of thrust capacity with a hydraulic jacking and reaction system. The CPT is obtained via an advanced computer monitoring and data reporting system providing a near continuous log of the site’s lithology that is ideal for sand, silt, clay soils. Groundwater depth was estimated via a CPT hydrostatic pressure test.

CPTs were advanced only on the County property adjacent to the existing Ford Pond site. Five CPT borings (locations are shown on **Figure 2**) were advanced on September 15, 2016 to depths ranging from approximately 50 feet to 100 feet below ground surface (ft-bgs). Upon completion, all borings were grouted using a Portland cement mixture under the supervision of District inspectors. The CPT logs are shown on **Figures 4** to **8**.

The CPT logs show a relatively consistent lithology among the boring locations. There are silty sands and sandy silts in the upper 4 to 16 feet, followed by more coarse-grained sands from roughly 16 to 45 ft-bgs. The two deeper CPTs (CPT-1 and CPT-5) show more variable lithology below a depth of 45 feet. CPT-1 shows more fine-grained materials from 45 to 73 ft-bgs, the bottom of the sounding, while CPT-5 shows a thinner fine-grained unit from 45 to 60 ft-bgs, followed by coarser-grained materials from 60 to 90 ft-bgs. Depth to groundwater at the time of drilling (September 2016) was interpreted between 38 and 45 ft-bgs in CPT-1, 2, 3, and 4. The pore pressure test in CPT-5 failed and no estimate of depth to groundwater was available.

Todd Groundwater’s Health and Safety Plan for the field activities is included in **Appendix C**. Gregg Drilling’s report on the CPTs data collection and analysis is included in **Appendix D** along with a list of references relevant to the science behind CPT technology.

4.2 Sonic Boring Drilling and Lithology

Sonic drilling utilizes a rotating and vibrating method whereby the rod, core barrel, and casing are oscillated at sonic frequencies producing a relatively clean borehole that is drilled, cored, and cased at the same time. Continuous sonic-derived cores are collected and contained in plastic bags for the full depth of the boring. Relatively undisturbed split-spoon core samples were also collected from the sonic borings for aquifer parameter laboratory testing (hydraulic conductivity and porosity). Cascade Drilling, LP (Cascade) conducted the drilling using a full-size truck-mounted rig that provided relatively undisturbed core samples.

Sonic drilling was conducted at three locations at the Ford Pond site and County Parks-owned parcel, at the Page and McGlincy Ponds in the Los Gatos Ponds Recharge System and for one of the borings drilled for the multi-completion monitoring wells located downgradient of the Budd Ponds. Soils were logged in the field using the Unified Soil Classification System (USCS) and soil colors were classified according the Munsell Soil Color Charts. The Ford Pond site and County Park-owned parcel sonic boring locations are shown on **Figure 2**, the Page and McGlincy Pond borings and multi-completion monitoring well site are shown on **Figure 3**. Documentation of the sonic borings drilled at the Ford, Page, and McGlincy Ponds is presented in this section. Documentation of the sonic boring drilled for the multi-completion monitoring wells construction is discussed in **Section 2.6**. The District permits for the borings are included in **Appendix B**.

Sonic boring logs with lithology and depth intervals of dissolution samples, hydraulic parameter testing samples and solid soil quality samples are included in **Appendix E**. The lithologic logs for sonic borings 1, 2, and 3 drilled at the Ford Pond and adjacent County Park site are graphically illustrated in **Figure 9**. The depth of dissolution and hydraulic property samples are also shown on the figure. Surface elevations shown on the figure were measured in the field with a consumer grade hand-held global positioning system (GPS) meter and are approximate. Sonic borings 1 and 2 were drilled on the County-owned parcel, while Sonic 3 was drilled in the bottom of the existing Ford Pond, which is about 18 feet lower than the elevation of ground surface on the County-owned parcel.

The borings at the Ford Pond and County-owned sites show relatively consistent lithologies. Sonic 1 and 2 logs indicate sandy (SM) materials from the surface to about 17 to 22 ft-bgs and gravel (GP and GM) to the groundwater table (approximately 38 to 42 ft-bgs). Sonic 3 encountered gravel (GP) from 0 to 20 ft-bgs, at similar elevations to where gravels were logged in Sonic 1 and 2 borings. The Sonic 1 and 2 logs show more gravel-containing sediments than the CPT borings because the CPT probe likely displaced or pushed aside the larger gravel fragments, with tip resistance measuring the sand and silt components. Groundwater was observed at approximately 43, 38, and 20 ft-bgs in Sonic 1, 2, and 3, respectively.

At the Page Pond site, Sonic 4 was advanced on an adjacent levee (**Figure 3**). The boring log and depth of dissolution samples for Sonic 4 are shown in **Figure 10**. The log shows predominantly gravel materials with clayey gravel and sand (GP, GC, and GM) with three zones of finer-grained silts and clays from 27 to 31 ft-bgs, 43 to 62 ft-bgs, and 138 to 143 ft-bgs. Groundwater was encountered at approximately 167 ft-bgs.

For the McGlincy Ponds site, Sonic 5 was advanced within the northernmost dry pond (**Figure 3**). The boring log and depth of dissolution samples for Sonic 5 are shown in **Figure 11**. The boring log shows predominantly sands and gravels with silts and clay with two zones of finer-grained clays with silt, sand, and gravel. Groundwater was encountered at approximately 169 to 170 ft-bgs.

Upon completion, the sonic borings were grouted using a Portland cement mixture under the supervision of District inspectors.

5 Ford Pond Area Hydraulic Parameter Laboratory Testing

Three relatively undisturbed soil samples were collected from each of the three sonic borings drilled at the Ford Pond and adjacent County-owned site for laboratory testing of soil properties including hydraulic conductivity (ASTM D 5084), porosity (API RP40 and ASTM D6836m), and specific gravity (ASTM D 854). The 2.5 x 6-inch brass tubes were collected using a split-spoon sampler. The tubes ends were covered with Teflon™-lined plastic end caps. Samples were sent to Cooper Testing Laboratory for analysis. Three of the nine samples could not be analyzed, one because of damage to the brass tube, which prevented extrusion, and two because the gravel samples had been disturbed. The Cooper Testing Laboratory Report is included in **Appendix F**.

The sample depths are shown in **Figure 9** and provided on the logs in **Appendix E**. **Table 1** presents the porosity testing results. Effective porosity ranged from 9.0 to 26.1 percent and total porosity ranged from 29.9 to 44.3 percent. Materials tested where sandy silt to silty gravel, and the porosity results are reasonable for these materials. Hydraulic conductivity was measured using falling-head tests. However, the results of these falling head tests were not useable. The size of the gravels in the gravelly samples was very large in comparison to the diameter of the sampling tube, effectively limiting flow through the sample during the falling head test. These conditions resulted in very low hydraulic conductivity values that are not representative of the material. Accordingly, the laboratory hydraulic conductivity results are not presented in **Table 1**.

Table 1 Porosity Testing Results

Ford Pond Sonic Boring	**Sonic 1**	**Sonic 1**	**Sonic 2**	**Sonic 2**	**Sonic 2**	**Sonic 3**	**Sonic 3**
Depth Interval (ft-bgs)	**12.0-12.5**	**27.5-28.0**	**8.0-8.5**	**17.5-18.0**	**27.0-27.5**	**7.0-7.5**	**14.0-14.5**
Description of Materials	Brown Sandy SILT (slightly plastic)	Light Brown Silty GRAVEL w/ Sand	Brown SILT w/ Rootholes	Brown SILT w/ Sand/ Sandy SILT	Brown Silty GRAVEL w/ Sand (slightly plastic)	Dark Brown Silty SAND change to Grayish Brown Sandy SILT	Dark Brown Silty SAND (slightly plastic)
Total Porosity	38.2%	29.9%	42.5%	44.3%	30.9%	40.8%	33.7%
Air-filled Porosity, %	*24.2%*	*24.7%*	*31.0%*	*35.7%*	*23.4%*	*25.4%*	*21.6%*
Water-filled Porosity, %	*14.0%*	*5.3%*	*11.5%*	*8.5%*	*7.5%*	*15.4%*	*12.1%*
Effective Porosity	13.5%	13.3%	9.0%	9.3%	11.4%	26.1%	21.9%

Sonic 1 (23.5-34.0) had a dammed tube, unable to extrude

Sonic 2 (23.5-24.0) and Sonic 3 (17.5-18.0) contained disturbed gravel and were not run

ft-bgs - feet below ground surface

w/ - with

6 Ford Pond Area Infiltration Testing

As part of the IPR program, the District is evaluating the feasibility of expanding or re-operating the existing Ford Pond to recharge purified water. The South Bay Water Recycling Strategic and Master Plan (RMC and CDM, 2014) indicates that there may be up to 4,200 AFY of recycled water available for advanced treatment in a satellite plant and subsequent groundwater recharge in the Ford Pond area. This equates to 11.5 acre-feet per day (AFD) throughout the year.

Todd used the information collected from CPT and sonic borings described above to evaluate the lithology of the Ford Pond site and the adjacent County Parks-owned property (see location map in **Figure 12**). These data were combined with historical Ford Pond operations information to provide a preliminary evaluation of the infiltration potential at the existing Ford Pond site and adjacent County Parks-owned parcel. This preliminary evaluation indicated that the existing pond likely has a high recharge potential, but the rate could not be ascertained from operational records of historical recharge. In addition, the subsurface investigation described above showed that the material below the existing Ford Pond are significantly coarser and more permeable than the near surface materials on the County-owned property. For these reasons, a field infiltration test of both properties was recommended.

The subsurface information was used to prepare the generalized cross section included on **Figure 13**. This cross section shows that in the eastern portion of the sites (Sonic 1 and 2), silty sand (SM) occurs from the ground surface to about 20 ft-bgs. The silty sand is underlain by silty and sandy gravel (GM and GP) to the water table, which occurs at approximately 40 ft-bgs. In the western portion of the sites (Sonic 3 in the existing Ford Pond), subsurface lithology is represented by sandy gravel (GP), and the water table occurs at about 20 ft-bgs. CPTs indicated that the water table is situated above low-permeability silt and clay deposits, which occur between 50 and 70 ft-bgs with approximate thicknesses between 10 and 20 feet across the sites.

A field test to assess the permeability and suitability of the upper vadose zone sediments for long-term groundwater recharge via surface spreading methods was then undertaken. The test was conducted for a period of 10 days in infiltration test basins at two locations. One of the test infiltration basins was located on the County-owned parcel in the central portion of that site (Basin 1) to estimate the infiltration capacity of the silty sand deposit that occurs in the upper 20 feet of vadose zone. The other test infiltration basin (Basin 2) was located within the eastern portion of the existing Ford Pond to test the infiltration capacity of the sandy gravel underlying Ford Pond. Two temporary monitoring wells were also installed to support infiltration testing, one next to each test infiltration basin. Results of the infiltration tests support a planning-level estimate of the overall long-term infiltration capacity of the Ford Pond site and adjacent County-owned parcel.

Following completion of the field infiltration test, extreme weather events caused flooding along Coyote Creek, which runs directly adjacent to the existing Ford Pond. This flooding caused

Coyote Creek to overtop the levee separating it from the existing Ford Pond, filling the pond. This unplanned flood-filling event was also used to assess the infiltration capacity of the entire existing Ford Pond under heads far higher than would normally be applied in percolation pond operations.

6.1 Historical Ford Pond Site Recharge Operations

The existing 4.7-acre Ford Pond was originally constructed in 1968 by the District for recharging surface water released from Anderson Reservoir to Coyote Creek and or delivered to Coyote Creek from the Main Avenue pipeline or San Luis Reservoir via the Santa Clara Conduit. Between 1996 and 1998, the District operated the off-stream Ford Pond and berms in Coyote Creek to recharge groundwater. These recharge operations involved diversion of water from Coyote Creek into the existing Ford Pond and approximately 18 acres of in-stream detention behind berms in the creek.[1] Ford Pond was reportedly used for recharge year-round when it was active, while in-stream detention was only in place August through November. During the very wet El Niño season of 1998/1999, high creek flows severely damaged the instream dam structures and fish passages as well as the pond intake. Recharge in Ford Pond and the instream dams was halted following the flooding damage.

Operational recharge volume information for Ford Pond site was provided by the District and reviewed as part of the infiltration assessment. These data were only available monthly, and District operations personnel indicated that pond water elevations were generally held constant when the berms were in place in Coyote Creek. However, for other months of the year, there was no information available regarding when or how often during the month the pond was filled with recharge water. Monthly volumes and calculated infiltration rates for the operational period of record vary widely. The infiltration rates and volumes that were diverted into the Ford Pond site are shown on **Figure 14**. As noted, District recharge operations at the Ford Pond site included diversions to the Ford Pond and in-stream berms (from August through November). Data for these months includes total monthly volumes for both in-stream and Ford Pond recharge. **Figure 14** shows infiltration rates for water recharged in both the Ford Pond and the in-stream berms, as well as volumes diverted only to the off-stream Ford Pond. For the months of August through November, these volumes were estimated by prorating the total volumes recorded (for Ford Pond and in-stream recharge) by overall infiltration rate and the area of the Ford Pond. The average infiltration rate when the District was actively recharging at the combined Ford Pond facilities was 1.3 ft/day. However, monthly volumes diverted into Ford Pond varied widely during this period but were not recorded; inferred infiltration rates ranged from 0.2 to 7.2 ft/day as a result. It is likely that these wide monthly variations in recharge volumes and rates are the result of variable water availability or other operational considerations, and the inferred rates are not an accurate reflection of infiltration potential.

---

[1] Operation of in-stream detention berms began in 1958.

District staff observed discharge from Ford Pond back to Coyote Creek when Ford Pond was in operation, and would expect this condition to occur if pond operation resumes (District, 2017).

Additional field-testing of the existing pond and the County-owned property was undertaken to more accurately characterize potential infiltration rates at the combined site.

6.2 Infiltration Field Tests

The field infiltration tests were designed to evaluate infiltration potential in the existing Ford Pond and a potential new pond on the County-owned property. These were intended to be constant head infiltration tests in which the water levels in the basins were maintained at a constant level throughout the test period. Testing included construction of two temporary infiltration test basins, controlled discharge of water into each test basin and monitoring of water volumes and ponded water heights over the 10-day testing period. Test Infiltration Basin 1 (Basin 1), located in the central portion of the County-owned parcel, was used to estimate the infiltration capacity of the silty sand deposit that occurs in the upper 20 feet of the vadose zone. Test Infiltration Basin 2 (Basin 2), located within the eastern portion of the existing Ford Pond tested the infiltration capacity of the sandy gravel underlying that pond. Shallow temporary monitoring wells were installed adjacent to each test infiltration basin. The testing facilities and infrastructure are shown on **Figure 15**. The tests were designed to estimate infiltration rates of the shallow sediments, vertical travel time of recharge water through the vadose zone, and the groundwater level response in each location. Infiltration volume, infiltration rates and groundwater depth information data were collected daily during the 10-day test period.

6.2.1 Temporary Infiltration Test Basins

The test basins were excavated by Cascade with construction observation by Todd staff on January 5, 2017. Basin 1 on the County-owned property (**Figure 15**) was constructed to be approximately 20 feet square by five feet deep with excavated material stockpiled next to the basin. The excavation of Basin 1 showed silty material for the full depth of the basin, as expected from the subsurface investigation. The test infiltration basin in the existing Ford Pond (Basin 2) was constructed to be approximately 10 feet square by six feet deep with excavated material stockpiled next to the basin. Excavation in Basin 2 showed consistent sandy gravel materials for the full depth of the basin. The sidewalls of each basin were completed with near vertical slopes, and Basin 1 included a bench at approximately 3 feet above its bottom for safety. Each basin was equipped with a temporary staff gage for measuring the height of water in the basin during the test.

Each test basin and all accompanying equipment was secured within locked construction fence enclosures throughout the duration of the test.

6.2.2 Water Supply, Conveyance, and Control

Water for testing was supplied from a potable water fire hydrant at the end of Eden Park Place using a combination of rigid aluminum piping and fire hose. The hydrant continuously supplied water to the test basins at a reported pressure of 40 pounds per square inch. Cascade secured a temporary account with Great Oaks Water Company that included a meter to measure water use during the test.

Water from the hydrant was conveyed to the two test infiltration basins by rigid aluminum pipe wherever possible and using flexible pipe in steep terrain and locations where the piping needed to be movable. A traffic-rated ramp along with cones and caution signs were placed to protect piping where it crossed the office complex emergency driveway at the end of Eden Park Place. The water distribution system allowed for continuous on-demand supply to Basin 1. In order to limit the duration of temporary bike path crossing with the hose, a temporary 6,900-gallon storage tank was placed next to the bike path with flexible hose from the tank down to Basin 2. This was the largest size portable tank that could be transported and placed on the site. When the temporary piping was in place across the bike path to fill the tank, a traffic ramp and appropriate warning signage was set up to warn path users and allow cyclists to cross the temporary pipeline. The temporary pipeline across the bike path was only in place while the storage tank was being filled, which occurred once a day.

The discharge piping at each basin was equipped with a discharge manifold that included flow measuring gages and control valves. The water supply piping at each basin entered the manifold in a 2-inch diameter totalizing flowmeter. The manifold then split the flow to two discharge lines; one with a float control valve and one with an open discharge and a valve. This manifold allowed for metering all flow into the basins and the option of filling the basin quickly through the open discharge or in a controlled fashion through the float valve.

6.2.3 Temporary Monitoring Well Installation

The monitoring well lithology and construction logs are included in **Appendix G**. The monitoring wells were intended to be temporary and used only for the duration of the infiltration test. Accordingly, the District obtained exploratory boring permits for the wells. The wells were drilled using a limited access Rhino M5T track mounted hollow stem auger rig. The wells were installed by Gregg Drilling under the supervision of Todd staff on January 9, 2017.

The lithology encountered in the wells was consistent with the lithology described above for the CPTs and sonic borings. Well MW-1 located next to Basin 1 was drilled to 45 ft-bgs and screened from 40 to 45 ft-bgs. Well MW-2 was drilled to 25 ft-bgs and screened from 20 to 25 ft-bgs. The wells were completed with locking stick-up (3 feet above ground surface) well boxes for greater visibility for field equipment. The wells were developed to remove sediment and clear well screens and filter pack of suspended sediments so that the monitoring wells yielded clear water (turbidity measured at 5 NTU or less). Transducers were installed in the wells to record groundwater levels during the infiltration test and subsequently removed.

The intention was to destroy the wells immediately after completion of the infiltration test; however, heavy rains and flooding of the existing Ford Pond delayed destructions until June 2017. Additional hand measurements of groundwater levels were collected periodically after removal of the transducers.

6.3 Ford Pond Area Infiltration Field Test Results

The infiltration test was started on January 20, 2017 when both test basins were first filled with water and continued uninterrupted for 10 days. The water supply to the basins was turned off on January 30th.

6.3.1 Test Operation and Data Collection

The test was managed, maintained, and monitored by staff from Todd and Field Solutions, Inc. of San Jose. Todd started the test and then Field Solutions visited the site daily to monitor test progress and maintain equipment and measure test basin water levels. The daily field visits included the following:

1. Check conditions at the water supply fire hydrant at the end of Eden Park Place.
2. Record date, time, and volume measurement from flowmeter.
3. Check for leaks over full length of water supply pipeline.
4. Record date, time, flowmeter volume, and staff gage measurements from Basin 1.
5. Re-fill Basin 1 and adjust inflow rates as necessary.
6. Record post-filling date, time, flowmeter volume, staff gage measurements, and depth to water for Basin 1.
7. Walk water supply pipeline between Basin 1 and storage tank, checking for leaks over full length of pipeline.
8. Go to Basin 2 and record date, time, flowmeter volume, staff gage, and depth to water measurements.
9. Set up movable flex hose between storage tank and water supply pipeline.
10. Cover hose across bike path with ramp from within fenced area adjacent to storage tank and set out warning signs.
11. Open valves to start filling storage tank.
12. Refill Basin 2 as necessary.
13. Record post-filling date, time, flowmeter volume, and staff gage measurements for Basin 2.
14. Continue filling storage tank until completely full.
15. Remove ramp, signage, and movable hose and place back in fenced area.

The monitoring wells were equipped with data logging transducers recording groundwater levels on one-minute intervals prior to and throughout the infiltration test. These transducers were installed and began collecting data well before the start of the test on January 12th and remained in place until February 8th. In addition, the District collected manual depth to groundwater measurements in MW-1 on February 28th and in both monitoring wells on March 8th, 2017.

The first day of the test there was a problem with the discharge manifold at Basin 1, so the basin was simply filled and left to drain, resulting in a low volume and infiltration rate for the first day of the test. Subsequently, the float valve in Basin 1 alone was not capable of keeping up with infiltration. Supplemental constant rate flow was added to the pond through the open discharge line in the manifold. It took several days of adjustment to calibrate this supplemental flow to the infiltration rate in Basin 1, and final calibration of this flow was not achieved until the fifth day of the test.

Basin 2 also consumed more water than the float valve was capable of supplying. Since the water supply to Basin 2 was from a tank with a finite volume, it was necessary to simply choose a rate that would keep water in the pond for the longest possible duration. A flow rate of approximately 10 gallons per minute was chosen to balance the duration of flow into the basin from the tank with basin infiltration demand. At this rate, the water level in the basin was constantly falling and the storage tank could supply water to Basin 2 for just under 12 hours, at which point the remaining water in the basin would infiltrate. This approach resulted in a hybrid constant head/falling head infiltration test.

Field measurements of the volumes and water heights in the basins are presented on **Tables 2** and **3** for Basins 1 and 2, respectively.

Table 2 Basin 1 Infiltration Test Results

Date and Time	Incremental Elapsed Time (days)	Total Elapsed Time (days)	Volume Infiltrated (cubic feet)	Rate Calculated Assuming All Water Infiltrates through Basin Bottom Only[1] (Approximately 512 sq ft)		Rate Calculated Assuming Water Infiltrates Equally through Basin Bottom and Sidewalls[2]		
				Height Infiltrated (feet)	Infiltration Rate (ft/day)	Combined Surface Area (sq ft)	Height Infiltrated (feet)	Infiltration Rate (ft/day)
1/20/2017 15:31	0.00	0.00	--	--	--	--	--	--
1/21/2017 11:22	0.83	0.83	1,364	2.7	3.2	632	2.2	2.6
1/22/2017 9:20	0.84	1.74	3,255	6.4	7.6	725	4.5	5.3
1/23/2017 8:20	0.88	2.70	4,774	9.3	10.5	732	6.5	7.4
1/24/2017 11:06	1.02	3.82	6,140	12.0	11.8	719	8.5	8.4
1/25/2017 8:25	0.69	4.70	5,962	11.7	16.9	749	8.0	11.5
1/26/2017 8:20	0.90	5.70	6,887	13.5	15.0	723	9.5	10.6
1/27/2017 8:30	0.90	6.71	7,490	14.6	16.3	725	10.3	11.5
1/28/2017 9:15	0.93	7.74	9,245	18.1	19.5	760	12.2	13.1
1/29/2017 8:33	0.90	8.71	8,567	16.7	18.6	723	11.9	13.2
1/30/2017 9:07	0.94	9.73	8,893	17.4	18.5	740	12.0	12.8
				Average:	**13.8**			**9.6**
				Average After Day 2:	**15.9**			**11.1**
				Average After Day 4:	**17.5**			**12.1**

sq ft - square feet ft/day - feet per day

1 - Approximate pond area is the area of the bottom of the pond only; does not include any sidewall area.

2 - Area is variable because the height of water in the basin changed througout the test. The sidewall area for these calculations is based on the daily average height of water in the Basin.

Table 3 Basin 2 Infiltration Test Results

				Rate Calculated Assuming All Water Infiltrates through Basin Bottom Only[1] (Approximately 512 sq ft)		Rate Calculated Assuming Water Infiltrates Equally through Basin Bottom and Sidewalls[2]		
Date and Time	**Incremental Elapsed Time (days)**	**Total Elapsed Time (days)**	**Volume Infiltrated (cubic feet)**	**Height Infiltrated (feet)**	**Infiltration Rate (ft/day)**	**Combined Surface Area (sq ft)**	**Height Infiltrated (feet)**	**Infiltration Rate (ft/day)**
1/20/2017 15:54	0.00	0.00	--	--	--			
1/21/2017 11:55	0.83	0.83	1,194	9.6	11.5	226	5.3	6.3
1/22/2017 9:32	0.88	1.73	1,309	10.6	12.0	249	5.2	6.0
1/23/2017 8:45	0.94	2.70	1,501	12.1	12.8	248	6.1	6.4
1/24/2017 11:35	1.08	3.82	586	4.7	4.4	245	2.4	2.2
1/25/2017 9:02	0.86	4.71	1,441	11.6	13.5	249	5.8	6.7
1/26/2017 9:05	0.96	5.72	1,450	11.7	12.1	248	5.9	6.1
1/27/2017 9:10	0.96	6.72	1,458	11.7	12.3	248	5.9	6.1
1/28/2017 9:30	0.97	7.73	1,420	11.4	11.8	251	5.7	5.8
1/29/2017 9:09	0.95	8.72	1,386	11.2	11.8	256	5.4	5.7
1/30/2017 9:15	0.97	9.72	1,432	11.5	11.9	256	5.6	5.8
				Average:	**11.4**			**5.7**
				Average Excluding Day 4:	**12.2**			**6.1**

sq ft - square feet ft/day - feet per day

1 - Approximate pond area is the area of the bottom of the pond only; does not include any sidewall area.

2 - Area is variable because the height of water in the basin changed througout the test. The sidewall area for these calculations is based on the daily average height of water in the Basin.

6.3.2 Infiltration Rates

Measured infiltration rates in the test basins were higher than expected, especially in Basin 1, which was expected to have low infiltration rates due to the fine-grained material in the basin. Daily infiltration rates are shown in **Tables 2** and **3** and **Figures 16** and **17** for Basins 1 and 2 respectively. The infiltration rate estimates shown in **Tables 2** and **3** and **Figures 16** and **17** were calculated and presented for two separate assumptions; rates were calculated assuming all the water infiltrated through the bottom of the basins and separately assuming that the bottom of the basin and the sidewalls infiltrated equally. These assumptions are simplifications, and actual long-term infiltration rates will be dependent on a variety of hydrogeologic and operational factors. Because the height of the water in the basins fluctuated throughout the test, the wetted height and area of the sidewalls was calculated for each day of the test based on the daily average height of water in each basin. Calculated daily surface areas of the wetted basin bottoms and sidewalls are included in **Tables 2** and **3**. The calculations based on the assumption that all the wetted area of the sidewalls and base infiltrated equally reduces the infiltration rates by 30 percent for Basin 1 and nearly 50 percent for Basin 2. Basin 1 (**Table 2** and **Figure 16**) showed a steady increase in infiltration rate over the course of the test. The apparently increasing rate resulted from difficulty in the rate of water delivery to the basin, and does not reflect actual variation in infiltration rate over time. Even with the variation in the rate of water delivery to Basin 1, the average infiltration rate for the entire 10-day period was 13.8 ft/day considering infiltration through the bottom of the basin alone and 9.6 ft/day considering infiltration through the bottom and sidewalls. Excluding the first two days when the volume of water delivered to the test basin was lower, the average 8-day infiltration rates were 15.9 ft/day and 11.1 ft/day for bottom area only and bottom and sidewall areas, respectively. For the last six days, when water delivery was more constant, the average infiltration rate was 17.5 ft/day calculated based on infiltration through the bottom area alone and 12.1 ft/day calculated based on infiltration through the bottom and sidewall areas combined.

Basin 2 also showed high infiltration rates during the test period (**Table 3** and **Figure 17**). The rates in Basin 2 were more consistent than those in Basin 1, except for the low infiltration rate from day 4. This apparently low value resulted from a plumbing malfunction that reduced the available water to the basin on day 4. Omitting the day 4 low value, the average infiltration rate for Basin 2 was 12.2 ft/day calculated using the area of the bottom of the basin alone and 6.1 ft/day calculated using the bottom and sidewalls combined. However, the measured infiltration rates in Basin 2 are all limited by the volume of supply available to the basin from the 6,900-gallon storage tank. This restricted the ability to assess higher infiltration rates.

6.3.3 Effects on Groundwater

Infiltration during the test had no observable effect on groundwater levels in the monitoring wells directly adjacent to basins. Depth to groundwater measurements from both monitoring wells are shown on **Figure 18**. These graphs show that groundwater levels in the monitoring wells were rising steadily for the eight days of measurement preceding the test and this rate of rise continued for nearly the first four days of the test. The rate of increase in the groundwater levels slowed early in the day on January 24th, and this reduced rate of rise continued for another five and a half days. The rate of rise slowed again on January 30th. These trends are more apparent in the MW-1 dataset, but they are present in measurements from both monitoring wells. The rising trend and the occasional changes in the rate of rising groundwater levels appear to be correlated to precipitation and creek flow and not local infiltration from the test basins. **Figure 18** also shows measured discharge on Coyote Creek from the closest active gage to the Ford Pond site, which is at Edenvale approximately two miles downstream from Ford Pond site. The groundwater levels in the monitoring wells appear to be more affected by discharge changes in Coyote Creek than local infiltration in the test basins. The District collected manual depth to groundwater measurements in the monitoring wells in early March, and these measurements show that groundwater levels continued to rise in response to precipitation and creek discharge events after the test stopped, and groundwater levels fell in MW-1 in early March following two weeks without major rainfall events.

The lack of response in groundwater levels to the infiltration tests likely indicates very high permeability and transmissivity at the sites. The measured infiltration rates in the basins over the 10-day test were very high in comparison to the thickness of the unsaturated zone. This is especially true of Basin 2, where groundwater was present within approximately 1.5 feet of the bottom of the basin at the start of the test, and was approximately even with the bottom of the basin at the end of the test. Basin 2 was excavated to approximately 6 feet deep and groundwater was approximately 7.3 ft-bgs in MW-2 at the start of the test on January 20th and approximately 5.9 ft-bgs at the end of the test on January 30th. Therefore, water from Basin 2 was virtually infiltrating directly to groundwater throughout the test. The aquifer materials underlying Basin 2 would have to be very permeable and transmissive to accommodate the volume of water that was infiltrated.

Subsurface conditions in Basin 1 were different from those described for Basin 2. In Basin 1 groundwater was approximately 20 feet below the bottom of the basin at the start of the test and still approximately 19 feet below the bottom at the end of the test. In addition, Basin 2 was completed into silty material, as described above. It is possible that the soils under Basin 1 have significantly higher horizontal than vertical hydraulic conductivity (high vertical anisotropy). In that case, the wetted front from water infiltrated from Basin 1 may have spread over a wide area. The larger the area of the wetted front, the smaller the magnitude of the vertical effect on groundwater elevations and the larger the chance that water never reaches groundwater. However, the subsurface differences between Basins 1 and 2 are not that extreme. The simplest explanation for the absence of effects on nearby groundwater elevation in MW-1 is that the change was small due to the highly transmissive nature of the gravel aquifer at the site and it was obscured by rapidly rising local groundwater elevations resulting from precipitation infiltration and high creek stage.

6.3.4 Existing Ford Pond Fill from Coyote Creek Flooding

A series of extreme weather events occurred in the Coyote Creek watershed in the winter of 2017. In mid-February, these weather events caused flooding along Coyote Creek from Morgan Hill through San Jose. The peak discharge on lower Coyote Creek occurred mid-day on February

21st, as shown on **Figure 19**. Presumably, sometime during this peak flow, Coyote Creek overtopped the levy separating it from the existing Ford Pond and filled the pond. The flooding was photographed on the morning of February 22nd, as shown on **Figure 20**. District staff checked on the status of the pond occasionally over the two weeks following the flooding event. They found that approximately half of the water had infiltrated by February 28th and by March 8th Ford Pond was essentially empty. District staff estimated the height of the water at approximately 15 feet when Ford Pond was full and approximately 8 feet high on February 28th.

This event and the subsequent observations by District staff provided an opportunity to estimate the infiltration rate of the entire pond (versus the smaller Basin 2 area) under extreme conditions. The conditions were extreme because:

1. Groundwater was very close to the bottom of Ford Pond, or perhaps even above the bottom of the pond, when the flooding event occurred.
2. Ford Pond has not been maintained for many years, so there is vegetation and fine-grained material buildup in the bottom of the pond that likely reduces infiltration capacity.
3. The floodwater carried a load of suspended sediment; fine-grained material in the water may have further reduced infiltration capacity.
4. Under these extreme conditions, the Ford Pond infiltrated at a rate of approximately 1.2 ft/day for the first six days and approximately 1 ft/day for the following 8 days, or an average rate of approximately 1.1 ft/day. This rate represents the bottom end of the range of potential infiltration rates for the Ford Pond site and is likely not representative of the rates that could be expected for recharging purified water in well-maintained ponds at the site.

6.3.5 Pond Requirements for Purified Water Recharge

It appears possible to recharge the planned 4,200 AFY of purified water available for groundwater recharge and IPR in the Ford Pond area. This annual volume of water is equal to 11.5 AFD if it is spread evenly over the year. Recharging this volume in the existing 4.7-acre Ford Pond would require an average infiltration rate of 2.4 ft/day, which is within the range indicated by testing, but higher than the historical average. Operating recharge ponds requires downtime for maintenance or other operational considerations. In addition, infiltration rates are likely to fall slightly between maintenance events due to clogging and settling in the ponds. Reductions in infiltration rate may not be as pronounced when using purified water due to negligible suspended solids and nutrients. However, solids and nutrients are likely to be introduced from atmospheric and terrestrial sources to open infiltration basins, so some reductions are still anticipated. It should also be noted that infiltration rates in dry or near dry ponds may be higher than those in continuously operated recharge ponds.

Orange County Water District (OCWD) has found that infiltration rates in their advanced-treated recycled water recharge facilities decreased over time as a result of apparent clogging of shallow soils (OCWD, 2017). An ongoing investigation of the OCWD Miraloma recharge basin has indicated that these reductions may be the result of chemicals and/or polymers that are added to the advanced-treated recycled water prior to recharge to aid in transmission (OCWD, 2017). OCWD has reported reductions in infiltration rates of approximately 30 percent (OCWD, 2017). Given the maintenance requirements and the potential for reductions in infiltration rates, it would be appropriate to assume that at least one additional infiltration pond will be required in addition to the existing Ford Pond.

6.3.6 Potential for Recharged Water to Discharge to Coyote Creek

As noted above, during historical operation of the Ford Pond site, District staff observed recharged water from the existing Ford Pond discharging to the adjacent Coyote Creek (District, 2017). Accordingly, it is expected that purified water recharged in the existing Ford Pond and/or a new pond or ponds on the County-owned property would also discharge to Coyote Creek. To estimate the ratio of recharged water that may discharge into Coyote Creek, it is necessary to make some assumptions regarding the relationships between the components of the systems that govern groundwater flow. In the case of water recharging through a pond into groundwater and then potentially discharging to a nearby creek, the components governing flow include the following:

- Relative elevation of water in the recharge pond,
- Relative elevation of the bottom of the creek,
- Orientation of pond to creek and ratio of recharged water that is likely to flow towards the creek, and
- Relative thickness of the seepage face in the creek compared to total aquifer thickness.

The following assumptions regarding these relationships and other components governing groundwater flow under steady state recharge conditions were made in order to develop a preliminary estimate of the percentage of recharge water that may discharge to Coyote Creek:

- The 11.5 AFD of purified water is delivered continuously throughout the day.
- The infiltration capacity(s) of the pond or ponds is constant and can more than accommodate the anticipated volume of purified water.
- The maximum local groundwater elevation under steady state recharge conditions would be no higher than the bottom of the pond or ponds.
- The total aquifer thickness below the pond is approximately 20 feet, ending in the clay identified in Sonic 3.
- The average bottom elevation of Coyote Creek adjacent to the existing pond is five feet below the pond bottom.
- The total aquifer thickness below the bottom of Coyote Creek is therefore approximately 15 feet.
- The horizontal flow of groundwater out of the pond or ponds would be radially uniform in all directions under steady state recharge conditions.

- Water recharged to groundwater from the pond or ponds would penetrate to the full depth of the aquifer (i.e. vertical flow of groundwater out of the pond bottom would reach all the way to the bottom of the aquifer).
- Approximately ⅔ of the water recharged to groundwater from the pond or ponds would conservatively flow in the direction of the creek, based on the geometric relationship between the existing pond, the County-owned parcel and the creek. The remaining ⅓ would be expected to flow away from the creek to the south and west.

Given these assumptions, the potential for recharged water to discharge to the creek can be expressed as a ratio of the total volume recharged. This ratio is a function of the total percentage of recharged water flowing in the direction of the creek and the percentage of the total aquifer through which water could potentially discharge into the creek. As stated above, it is assumed that ⅔ (66 percent) of the water recharged to groundwater from the pond or ponds would flow in the direction of the creek. The thickness of the aquifer through which groundwater could potentially discharge is governed by the difference in elevation between the maximum groundwater elevation and the lowest topographic feature. In this assessment, the maximum groundwater elevation is assumed to be the bottom of the existing pond and the lowest topographic feature is the bottom of the creek. If, as noted in the assumptions, the total aquifer thickness is 20 feet, the maximum saturated thickness is achieved when groundwater elevations are equal to the existing pond bottom. If the bottom of the creek is on average five feet below the bottom of the existing pond, then the thickness of the seepage face is five feet. However, the thickness of the discharge area may be less than 5 feet, if there is a sloping groundwater surface between the ponds and the creek. A discharge area between one and five feet thick would represent between 6 and 25 percent of the total aquifer thickness. Therefore, the volume of recharged water that could potentially flow to the creek would be between 6 and 25 percent of the 66 percent that flows towards the creek, or 4 to 16.5 percent of the total volume of water recharged.

One of the critical assumptions in the assessment presented above is that the ponds will have more than adequate capacity to infiltrate the 11.5 AFD of purified water currently estimated to be produced, and that as a result there will be no standing water in the ponds. If infiltration rates in the ponds are not adequate to accommodate this rate of recharge, or if the available supply of purified water exceeds the estimated 4,200 AFY, there may be standing water in the ponds. In that case, the thickness of the discharge area could potentially be greater than estimated above. If under steady state conditions there were five feet of standing water in the pond, the maximum potential discharge area could be up to 10 feet thick, representing ⅔ of the total aquifer thickness. In this case 26 percent of the recharged could potentially discharge to Coyote Creek.

6.3.7 Infiltration Test Conclusions

The infiltration field-testing and analyses showed that the Ford Pond site and adjacent County-owned parcel have good potential for recharging purified water. The subsurface investigation, historical Ford Pond site operations information, field-testing and Coyote Creek flood event combined show a combined site that has a high infiltration capacity and apparently high transmissivity. Specifically:

- The District's historical use of the existing Ford Pond indicated the potential for infiltration rates averaging 1.3 ft/day and as high as 7.2 ft/day.
- The subsurface investigations showed significant coarse-grained material at a consistent horizon below the Ford Pond site and the County-owned property.
- Testing of the two basins indicated that infiltration rates might be reasonably expected to be above 10 ft/day in undisturbed material.
- Even with these high infiltration rates, there was no apparent response in groundwater levels directly adjacent to the test basins.
    - At Basin 2 the absence of groundwater elevation response given the proximity of the water table to the bottom of the pond appears to indicate a highly transmissive aquifer.
    - At Basin 1, where the depth to water was greater and there is silty material, the lack of response in groundwater may indicate a highly transmissive aquifer or horizontal spreading of the infiltrated water over a wide area. This would be expected to decrease the magnitude of the effect on groundwater elevations.
- The flood event on Coyote Creek that filled Ford Pond indicated that the existing Ford Pond is capable of infiltrating even under extreme conditions of high groundwater elevations, lack of maintenance and silty water.
- The high infiltration rates from the tests in the Ford Pond site and the adjacent County-owned property do not account for long-term groundwater flow patterns resulting from recharging large volumes of water in the existing and/or new ponds. Natural background fluctuations in local groundwater elevations and groundwater mounding from recharging into the relatively shallow aquifer at the sites may significantly affect infiltration rates under operational conditions.
- Due to the wide range in infiltration rates observed at the Ford Pond site and County-owned property and the potential for groundwater elevation fluctuations and mounding in the relatively thin aquifer to affect long-term operational infiltration rates, it is recommended that a conservatively low rate be used for planning purposes.
- The historical operational records represent the longest period of managed recharge at the Ford Pond site. Therefore, it is recommended that the average rate of 1.3 ft/day from this period be used for operations planning purposes.
- It is likely that actual operational infiltration rate at the Ford Pond site and County-owned property will be higher given the use of purified water and the rates observed during testing. However, long-term operational rates are not likely to be as high as those observed during the short-term and small-scale infiltration tests.
- It is possible that water recharged in a pond or ponds at the Ford Road site and County-owned property could discharge to Coyote Creek. Between 4 and 16.5 percent of the

total volume recharged could potentially discharge to the creek under steady state recharge conditions. This ratio could rise as high as 26 percent of the total water recharged if water is pooled up to five feet deep.

7 Morgan Park Multi-Completion Monitoring Well Installation and Testing

This section summarizes the work associated with the drilling, soil sample collection, geophysical logging, construction, development, and water quality sampling of five wells (Morgan Park 1, 2, 3, 4, and 5) installed in two borings in the northeast corner of the parking lot off Budd Avenue in John D. Morgan Park in Campbell, CA just downgradient of the Budd Ponds, which are part of the District's Los Gatos Ponds Recharge System (**Figure 21**). The District is evaluating potential recharge of purified water in the Los Gatos Ponds. These monitoring wells were installed to fulfill one DDW monitoring well requirement related to replenishment with recycled water. Specifically, the IPR Project Sponsor (i.e., the District) must site and construct at least two monitoring wells downgradient of the Groundwater Replenishment Reuse Project (GRRP) in compliance with California Code of Regulations (CCR) Title 22, Sections §60320.126. One monitoring well must be located between two weeks and six months' travel time through the saturated zone from the GRRP and at least 30 days upgradient of the nearest drinking water well, and a second monitoring well must be located between the GRRP and the nearest downgradient drinking water well. The monitoring wells must allow for samples to be obtained independently from each aquifer used as a source of drinking water that will receive GRRP recharge water. The Morgan Park wells fulfill the requirement for a well located between two weeks and six months' travel from the GRRP and at least 30 days upgradient of the nearest drinking water well.

The wells provide groundwater level and groundwater quality monitoring points at varying depths downgradient of the proposed Los Gatos Ponds GRRP. In accordance with §60320.100, the District shall collect at least four quarterly groundwater samples from each nested GRRP well receiving recycled water prior to operating the Los Gatos Ponds GRRP. The purpose of these groundwater samples is to assess background groundwater quality in each potentially affected aquifer, including any seasonal water quality variability. Following potential Los Gatos Ponds GRRP implementation, the wells will be used for routine monitoring as described in the Groundwater Monitoring Plan, Indirect Potable Reuse Studies (Todd, 2017a).

The installation and testing of the Morgan Park monitoring wells were completed in several stages, including planning, preconstruction meetings, sonic borehole drilling, geophysical logging, mud rotary borehole drilling, well construction, well development, and soil and groundwater quality sampling. The drilling work was put out to bid by the District and Cascade was selected as the drilling contractor. The District managed the overall field program and Todd provided geologic and monitoring well design support to the District. The groundwater quality sampling portion of the field work was conducted by Blaine Tech Services (Blaine) of San Jose, CA under contract to Todd.

Todd coordinated with the District, Cascade and Blaine during the well drilling, construction, and testing process.

The well work is summarized below:

- Site preparation and planning
- Sonic drilling to 400 ft-bgs
    - Continuous sampling and geological logging of soil samples
    - Collection of soil samples for dissolution testing
    - Geophysical logging of the borehole
    - Design of the monitoring wells
    - Sealing the sonic borehole to 150 ft-bgs
    - Construction of two shallow monitoring wells in the upper 150 ft-bgs
- Mud rotary drilling to 400 ft-bgs in an adjacent borehole
    - Construction of three wells below 200 ft-bgs
- Well development
- Well vault completion
- Groundwater quality sampling
- Well surveying
- Installation of pressure transducers
- Disposal of cuttings
- Restoration of the site to pre-drilling conditions

During drilling of the sonic borehole, Todd staff were onsite to log and collect soil samples for dissolution testing and supervise the geophysical logging conducted by Dewey Data Inc. of Stockton, CA after drilling was complete. During the mud rotary drilling, construction, development, and water quality sampling, there was daily communication to check on the progress of the work, with onsite observations by District staff.

7.1 Preliminary Well Drilling Activities

7.1.1 Technical Specifications

The well drilling, sampling and construction work was completed in accordance with the District's Technical Specifications (**Appendix H**) and the scope of work described in the Todd contract with the District (A3852A) and amendments. The technical specifications include complete guidance for site preparation, well drilling and construction, testing and site cleanup including well cutting and fluid removal. The technical specifications were prepared by the District with input from Todd. The contract scope of work provides additional details on the total design depth of the wells and soil and groundwater sampling and analyses requirements. All drilling work was conducted in accordance with applicable District and State of California Water Well Standards.

7.1.2 Well Location Selection

The location of the monitoring wells was determined by the District with input from Todd. To help site the monitoring wells Todd conducted groundwater flow modeling to estimate travel times from the Los Gatos Ponds GRRP (Todd, 2017b). **Figure 22** shows the Budd Ponds of the Los Gatos Ponds recharge system, the Morgan Park monitoring wells, the nearest downgradient supply wells (07S01W27P09 and 07S01W27Q01) and the model-predicted travel time. The Morgan Park monitoring wells are located approximately two months travel time from the Budd Ponds. In accordance with DDW groundwater replenishment regulations, a second groundwater monitoring well is required between the Budd Ponds and the nearest downgradient drinking water well.

The District assessed potential sites for the monitoring wells within the modeled two-week to six months' siting criteria and identified John D. Morgan Park (Morgan Park) as a suitable location. Using input from the City of Campbell and Santa Clara County, the best location within the park was determined to minimize the well footprints and disruption to the nearby school, residences and recreational areas. The selected location is in the northeast corner of the parking lot off Budd Avenue (**Figure 21**). This property is owned by the City of Campbell Recreation & Parks Department.

7.1.3 Noise and Traffic Control

In compliance with City of Campbell building and permitting requirements, sound control was provided during well drilling. Behrens & Associates Environmental Noise Control, Inc. was subcontracted by Cascade to install a 24-foot high sound wall around the drilling sites, to ensure compliance with all noise control measures and requirements of the City of Campbell.

To accommodate work vehicles and maintain parking for visitors to the park, the parking lot where field activities took place was restriped to reverse the direction of traffic flow. Signage was placed along the outside of the sound wall to inform the public of the activities taking place within the sound walls during the field program. The parking lot was returned to pre-drilling conditions following completion of the wells.

7.1.4 Well Drilling Permits

The District is the permitting agency for wells in Santa Clara County. Permits were filed for the monitoring wells with District and are attached in **Appendix I**.

7.1.5 Utility Clearance

Prior to drilling, marking of utilities was completed by USA North. Any underground utilities within the field site, including gas lines, telephone lines and power lines were clearly marked. The USA markings include location and orientation of underground utilities.

7.2 Sonic Borehole Drilling and Geologic Logging

Cascade mobilized a BLY T-600 sonic drill rig to the park on March 8, 2017. Following mobilization, Cascade drilled the sonic borehole to 400 ft-bgs. Drilling began on March 8, 2017 and total depth was reached on March 15, 2017.

The sonic borehole was hand-augered to five ft-bgs to identify any utilities not identified by USA North. During the initial hand-augering, a utility was encountered that was believed to be the power source for the light posts adjacent to the parking lot. Thus, the location of the borehole was moved five feet east of the original location. A 12-inch diameter borehole was drilled to 150 ft-bgs and then an 8-inch diameter borehole was advanced to 400 ft-bgs.

Continuous borehole samples are provided by the sonic drilling method. Accordingly, a continuous lithologic log was prepared by Todd under the supervision of a California registered Professional Geologist. Formation samples were described using the USCS nomenclature. The lithologic log for the sonic borehole is provided on the left-hand side of **Figure 23**.

Materials encountered were a mixture of silty sands and gravel to 57 ft-bgs, where a unit of silty clay was logged to 61 ft-bgs. From 61 to 67 ft-bgs, the material coarsened to a silty, sand with gravel. From 67 to 89 ft-bgs, clay with minor silt, sand, and gravel was encountered. Saturated conditions were noted at 73 ft-bgs. Material coarsened to a gravel, silt, sand, and clay mixture from 89 to 99 ft-bgs. At 95 ft-bgs, the samples were no longer saturated. From 99 to 161 ft-bgs, silty sands and gravels were encountered, often with cobbles up to 3-inches in diameter. Saturated conditions were once again observed beginning at 111 ft-bgs. From 161 to 171 ft-bgs, well-sorted sands and gravels were encountered. At 171 ft-bgs, finer silt, sands, and gravels were logged to 192 ft-bgs. From 192 to 197 ft-bgs, the material was predominantly silt with minor amounts of sand and gravel. From 197 to 237 ft-bgs, silty sands and gravels were encountered. Silty, sandy clay was seen from 327 to 334 ft-bgs, before coarsening to silty, sandy gravel from 334 ft-bgs to the bottom of the borehole at 400 ft-bgs.

Saturated zone soil samples collected from depths of 131 ft-bgs, 195 ft-bgs and 283 ft-bgs were sent to McCampbell Analytical (McCampbell) of Pittsburg, CA for dissolution studies analysis.

All cuttings and fluids generated during drilling were retained in bins and disposed of at Portrero Hill Landfill under the direction of the District.

7.2.1 Sonic Borehole Geophysical Logging and Monitoring Wells Design

Geophysical logging was performed by Dewey Data Inc. on April 7, 2017 and supervised by Todd. Borehole geophysical logging included the following logs: resistivity (including a short- and long-normal log), guard, gamma ray, spontaneous potential (SP), single point resistance, and temperature. The geophysical log data are provided on **Figure 23**. Following completion of the geophysical logging, the sonic borehole was backfilled with a bentonite seal from the bottom of the borehole to 150 ft-bgs.

The geophysical logs were used in conjunction with the lithologic log to identify coarse-grained materials to be screened in the nested monitoring wells. Initial well designs were prepared by

Todd and reviewed and modified by the District. The design called for two nested wells to be installed in the sonic borehole and three nested wells in the adjacent mud rotary borehole. The well completion details are shown in **Figure 23** and described in subsequent sections. The well designs were provided to Cascade for materials procurement and construction preparation.

7.3 Reverse Mud Rotary Borehole Drilling

The reverse mud rotary nested wells were constructed in a borehole located approximately 15 feet east of the sonic borehole (see **Figure 21**). Cascade mobilized a Speedster 50k reserve rotary drill rig for the drilling. The borehole was drilled with a 12.75-inch diameter drill rod to 405 ft-bgs. Because of the proximity to the sonic borehole, it was assumed that the two boreholes would be nearly identical lithologically, so the rotary hole was not independently logged.

7.4 Monitoring Well Installation and Development

7.4.1 Sonic Borehole Monitoring Well Installations

Following finalization of the monitoring wells design by the District, two monitoring wells were installed in the sonic borehole. Monitoring well construction consisted of placement of 2-inch diameter schedule 80 polyvinyl chloride (PVC) well casing and screens inside the 12-inch diameter borehole. The procedures for the construction of the wells are described in more detail in the Technical Specifications (**Appendix H**) and summarized below. The as-built conditions of the monitoring wells are shown in **Figure 23** and described below and in **Table 4**[2].

- The 8-inch diameter portion of the borehole from 150 to 400 ft-bgs was backfilled with hydrated bentonite pellets.
- 2-inch diameter PVC well screens with 0.02-inch machine cut slots (No. 20 slot) were placed in each of the borehole as follows:
  - Morgan Park 5 is screened from 90 to 105 ft-bgs.
  - Morgan Park 4 is screened from 132 to 147 ft-bgs.
- Artificial filter pack consisting of Monterey No. 3 sorted sand was placed within the borehole at a depth from three feet above the screen zone to three feet below the screen zone from 87 to 108 ft-bgs and 129 to 150 ft-bgs for Morgan Park 5 and Morgan Park 4, respectively.
- Hydrated bentonite pellets were placed from 108 to 129 ft-bgs and from 82 to 87 ft-bgs within the borehole for Morgan Park 5 and Morgan Park 4, respectively.

---

[2] The well naming convention presented in this report is similar to other District multi-completion monitoring sites, with "1" representing the deepest screen interval (e.g., Morgan Park 1). It should be noted that this differs from the State Well logs filed with DWR for these wells, where the well numbering is reversed, with 1 representing the shallowest screen interval and the numbers increasing with depth.

Table 4 Morgan Park Monitoring Well Construction

	District Well Name and Number[a]				
	Morgan Park 5 07S01W34G002	Morgan Park 4 07S01W34G003	Morgan Park 3 07S01W34G005	Morgan Park 2 07S01W34G004	Morgan Park 1 07S01W34G006
Drilling Method	Sonic		Reverse Rotary		
Drill Rig Type	BLY T-600 sonic drill rig		Speedster 50k reverse mud rotary		
District State Well Number	07S01W34G002	07S01W34G003	07S01W34G004	07S01W34G005	07S01W34G006
Well Coordinates (US survey foot) (NAD 83)	1928063.83 N 6138029.76 E	1928063.44 N 6138029.76 E	1928065.86 N 6138042.33 E	1928065.79 N 6138041.92 E	1928066.04 N 6138042.14 E
Well Elevation[b] (US survey foot) (NAVD88)	204.99	204.99	204.97	204.98	204.98
Well Elevation[b] (US survey foot) (NAVD29)	202.24	202.24	202.22	202.23	202.23
Borehole Diameter (inches)	12 inches from 0-150 ft-bgs 8 inches from 150-400 ft-bgs		12.75 inches from 0 to 405 ft-bgs		
Borehole Depth (ft-bgs)	400		405		
Well Diameter (inches)	2	2	2	2	2
Well Depth (ft-bgs)	109.45	149.15	233.62	298.93	393.64
Screen Interval (ft-bgs)	90-105	132-147	210-230	275-295	370-390
Screen Material and Slot Size	2-inch diameter Schedule 80 PVC, 0.02-inch machine cut slots (No. 20 slot)				
Bentonite Backfill (ft-bgs)	150-400		393-405		
Hydrated Bentonite Pellets (ft-bgs)	82-87 108-129		204-207 233-272 298-367		
Surface Seal (Neat Cement) (ft-bgs)	0-82		0-204		
Monterey No. 3 Sand (ft-bgs)	87-108 129-150		207-233 272-298 367-393		
Depth to Water[c] (ft-bgs) (4/24/2017)	88.80	90.75	95.73	96.81	110.89
Depth to Water[d] (ft-bgs) (6/01/2017)	60.04	68.72	85.24	87.00	111.84

a - The well naming convention presented in this report is similar to other District multi-completion monitoring sites, with "1" representing the deepest screen interval (e.g., Morgan Park 1). It should be noted that this differs from the State Well logs filed with DWR for these wells, where the well numbering is reversed, with 1 representing the shallowest screen interval and the numbers increasing with depth.

b - Ground surface elevation at well

c - Water level taken after well construction, prior to development

d - Water level taken after well development, prior to water quality sampling

ft-bgs - feet below ground surface	NAD83 - North American Datum of 1982
NAVD29 - North American Vertical Datum of 1929	NAVD88 - North American Vertical Datum of 1988
DWR - California Department of Water Resources	

- A sanitary surface seal consisting of neat cement slurry was placed in the annulus from ground surface to 82 ft-bgs. The sanitary seal was installed in accordance with District requirements under the supervision of grout inspector Timothy Ripp.

7.4.2 Reverse Mud Rotary Borehole Well Installations

Following the completion of reverse mud rotary borehole drilling, three monitoring wells were constructed in the borehole. Monitoring well construction consisted of placement of three 2-inch diameter schedule 80 PVC well casings and screens inside the 12.75-inch diameter borehole. The procedures for the construction of the well are described in detail in the Technical Specifications (**Appendix H**) and summarized below. The as-built conditions of the monitoring wells are shown in **Figure 3** and described below.

- The lower portion of the borehole was backfilled with hydrated bentonite pellets from 393 to 405 ft-bgs.
- 2-inch diameter PVC well screens with 0.02-inch machine cut slots (20 slot) were placed in each of the borehole as follows:
    - Morgan Park 3 screened from 210 to 230 ft-bgs.
    - Morgan Park 2 screened from 275 to 295 ft-bgs.
    - Morgan Park 1 screened from 370 to 390 ft-bgs.
- Artificial filter pack consisting of Monterey No. 3 sorted sand was placed within the borehole at a depth from three feet above the screen zone to three feet below the screen zone from 207 to 233 ft-bgs, 272 to 298 ft-bgs, and 367 to 393 ft-bgs for Morgan Park 3, Morgan Park 2 and Morgan Park 1, respectively.
- Bentonite pellets were placed from 204 to 207 ft-bgs, 233 to 272 ft-bgs, and 298 for 367 ft-bgs in in Morgan Park 3, Morgan Park 2 and Morgan Park 1, respectively.
- A sanitary surface seal consisting of cement slurry was placed in the annulus from ground surface to 204 ft-bgs. The sanitary seal was installed in accordance with District requirements under the supervision of grout inspector Timothy Ripp.

All well construction information can be found in **Table 4**.

7.4.3 Monitoring Well Development

Well development is the process of removing drilling fluids and sediment from a completed well, filter pack and surrounding aquifer. This practice enhances the hydraulic connection between the well and the aquifer and removes fine-grained material from around the well so that water may more easily flow into the screens. Well development is a multi-stage procedure, where each stage uses different tools and techniques to exert energy on the screens, filter pack and aquifer.

For this project, Cascade employed combined surging, air lifting and over-pumping to develop the monitoring wells. Well development took place from April 24, 2017 until May 12, 2017.

Daily work reports detailing monitoring well development are provided in **Appendix J** and described below.

- Surging was conducted with a valved surge block, which was used to force water in and out of each screened zone from top to bottom in strokes of five to ten feet.
    - Fine-grained materials were removed periodically from the bottom of the wells with a bailer when accumulation occurred.
- Air lifting development was then conducted using compressed air delivered to individual screened zones at sufficient pressure and capacity to pump the well by airlift principle to the maximum rate of the well production with a minimum of 5 gallons per minute (gpm).
    - Airlifting following surging was repeated until the fines entering the wells were decreased to approximately 25 Nephelometric Turbidity Units (NTU) with airlift.
- Following airlifting development, pumps were set in each of the five wells and pumping occurred until water was 5 NTU or less.

7.4.4 Well Completions

After development, wells were capped in order to prevent tampering and to prevent foreign objects and contaminants from entering the well. A traffic rated vault box was installed to contain each of the two nested well clusters.

District staff surveyed the five new monitoring wells, so that each well has a documented latitude, longitude and elevation. The District survey information is provided in **Appendix K**. The wells were each assigned a unique state well identification number and California Department of Water Resources (DWR) well completion reports were filed with the District and DWR. DWR well completion reports are provided in **Appendix L** and the District well completion notices are provided in **Appendix M**.

Transducers will be installed in each of the five monitoring wells by the District to provide a detailed record of groundwater elevations within each of the wells.

7.5 Morgan Park Multi-Completion Well Groundwater Water Quality Sampling

Groundwater samples from the five Morgan Park monitoring wells were collected and analyzed and results are presented here and further discussed in the dissolution testing section.

7.5.1 Well Purging and Sample Collection

Blaine was contracted as a subcontractor to Todd to purge and sample each of the five nested wells. The purging and sample collection took place from June 1 to June 6, 2017. Using an electrical submersible pump, a minimum of three well volumes was purged from each of the five wells, or until field measurements of pH, conductivity, and turbidity stabilized. After each well volume pumped, the water level was measured. Blaine's field sampling forms are included in **Appendix N**.

7.5.2 Laboratory Analyses

The groundwater samples collected from each of the five monitoring wells were submitted to Alpha Analytical of Dublin, CA (Alpha) for analysis key water quality constituents. The constituent list was based on the standard Title 22 as shown in **Table 5**.

Table 5 Constituents Sampled

General Parameter	For	Method(s)
Asbestos	Asbestos in drinking water	100.2
Dioxin 2,3,7,8-TCDD	Dioxin in drinking water	1613A
Uranium		200.8
Chromium (VI)		218.6
Perchlorate		314.0
EDB/DBCP	Organics	504.1
DDW Pesticides	Nitrogen and phosphorous pesticides	507
DDW Chlorinated pesticides	Chlorinated pesticides and PCBs	508
DDW Chlorinated acids	Chlorinated acids	515.1
DDW VOCs	Volatile organic compounds	524.2
DDW Semi VOCs	Semi-volatile organic compounds	525.2
DDW Carbamates	Carbofuran and oxamyl	531.1
Glyphosate	Glyphosate	547
Endothall	Endothall	548.1
Diquat	Diquat	549.2
General Mineral Scan or Conventional Chemistry	Includes alkalinity, aggressiveness index, anions, cations, metals, pH, TDS, MBAS	Varies: 200.7, 200.8, 300.0, SM2540C, SM4500, 2320B
Inorganics Scan	Includes metals, anions, cyanide	Varies: 200.8, 300.0, 245.1
General physical	Color, odor, turbidity	Varies: SM2120B, 140.1
Gross Alpha & Beta	Radioactivity	900.0
Radium 226 & 228	Radioactivity	903/904
Strontium 90	Radioactivity	905
Tritium	Radioactivity	906

EDB – ethylene dibromide DBCP – 1,2-dibromo-3-chloropropane
DDW – State Water Resources Control Board, Division of Drinking Water
VOCs – volatile organic compounds

Water quality results are shown in **Table 6**. Complete laboratory analytical water quality reports are presented in **Appendix O**. Due to size, this appendix is included as a stand-along Adobe™ file along with **Appendix P** separate from the remainder of this report.

Table 6 Morgan Park Wells Groundwater Quality Results

					Santa Clara Plain Median [a]			Morgan Park Monitoring Well No.				
								5	4	3	2	1
ANALYTE	**METHOD**	**DL**	**RL**	**MCL**	**Shallow Aquifer Zone [b]**	**Principal Aquifer Zone [b]**	**UNITS**	**90-105 (ft-bgs)**	**132-147 (ft-bgs)**	**03210-230 (ft-bgs)**	**275 - 295 (ft-bgs)**	**370-390 (ft-bgs)**
MAJOR IONS												
Bicarbonate (HCO_3)	SM2320B	1	5	--	--	--	mg/L	150	150	120	190	180
Calcium	EPA 200.7	0.2	1	--	--	--	mg/L	27	37	45	53	56
Chloride	EPA 300.0	0.1	0.5	250	62/133	46/117	mg/L	15	60	87	48	35
Magnesium	EPA 200.7	0.03	1	--	--	--	mg/L	13	16	18	21	20
Potassium	EPA 200.7	0.04	1	--	--	--	mg/L	1.9	1.5	1.1	0.98	1.4
Sodium	EPA 200.7	0.02	1	--	--	--	mg/L	35	46	32	18	18
Sulfate as SO_4	EPA 300.0	1	2.5	250*	934/1,924	80/27	mg/L	48	47	36	41	44
ANIONS												
Fluoride	EPA 300.0	0.07	0.1	2*	0.09/0.43	0.24/0.07	mg/L	0.11	0.11	0.11	0.11	0.11
Nitrate + Nitrite as N	Calculation	0.009	0.4	10	1.8/--	6.9/2.7	mg/L	0.37	0.4	0.5	1.9	1.8
Nitrate as N	EPA 300.0	0.04	0.4	10	1.6/4.7	2.9/6.4	mg/L	0.37	0.4	0.5	1.9	1.8
Nitrite as N	EPA 300.0	0.05	0.4	1	<0.4/<0.4	<0.4/<0.4	mg/L	ND	ND	ND	ND	ND
Perchlorate	EPA 314.0	0.9	4	6	<4/<4	<4/<4	µg/L	ND	ND	ND	ND	ND
ALKALINITY												
Carbonate	SM2320B	1	5	--	--	--	mg/L	ND	ND	ND	ND	ND
Hydroxide	SM2320B	1	5	--	--	--	mg/L	ND	ND	ND	ND	ND
Total Alkalinity as $CaCO_3$	SM2320B	1	5	--	--	--	mg/L	120	120	95	160	140
METALS												
Aluminum	EPA 200.8	8	50	1000/200*	27/139	8.4/137	µg/L	**1200**	**810**	41	22	11
Antimony	EPA 200.8	0.08	6	6	<1/<2	<6/<6	µg/L	0.11	ND	0.13	0.087	1.7
Arsenic	EPA 200.8	0.8	2	10	1.1/18	0.39/2.3	µg/L	0.94	1.2	ND	ND	1
Barium	EPA 200.8	0.2	100	1000	109/348	125/258	µg/L	49	50	64	61	62
Beryllium	EPA 200.8	0.08	1	4	<1/<1	<1/<1	µg/L	ND	ND	ND	ND	ND
Cadmium	EPA 200.8	0.2	1	5	<1/<1	<1/<1	µg/L	ND	ND	ND	ND	ND
Chromium	EPA 200.8	0.32	10	50	0.85/6.8	1/8.8	µg/L	2.9	2.3	2.5	2.4	15
Chromium, hexavalent	EPA 218.6	0.05	1	10	0.88/2.9	1.5/6.8	µg/L	ND	0.33	0.52	0.7	0.99
Copper	EPA 200.8	0.2	50	1300	1.7/5.1	1.9/11	µg/L	2.7	2.9	0.76	0.4	0.69
Iron	EPA 200.7	20	100	300*	7.6/1,795	12/540	µg/L	**1400**	**870**	78	25	120
Lead	EPA 200.8	0.08	5	15	<2/<5	0.21/2.3	µg/L	0.29	0.17	ND	ND	ND
Manganese	EPA 200.8	0.2	20	50*	22/5,877	1.4/209	µg/L	**70**	40	4.3	2.7	7.5
Mercury	EPA 245.1	0.06	1	2	<1/<1	<1/<1	µg/L	ND	ND	ND	ND	ND
Nickel	EPA 200.8	0.24	10	100	2/14	0.6/4.2	µg/L	4.6	3.5	0.82	1.5	14
Selenium	EPA 200.8	0.8	5	50	<5/<5	1.2/4.9	µg/L	ND	ND	ND	ND	ND
Silver	EPA 200.8	0.2	10	100*	<10/<10	<10/<10	µg/L	ND	ND	ND	ND	ND
Thallium	EPA 200.8	0.2	1	2	<1/<1	<1/<1	µg/L	ND	ND	ND	ND	ND
Uranium	EPA 200.8	0.08	1	20	--	--	pCi/l	0.095	0.12	0.1	0.27	0.38
Zinc	EPA 200.8	2	50	5000*	<10/<50	4.5/28	µg/L	4.8	3	ND	ND	2.3
GENERAL/OTHER												
Aggressive Index	AWWA		2	--	--	--	NU	11.33	11.55	11.46	11.66	11.86
Asbestos	EPA 100.2	0.2	0.2	7	<0.2/--	<0.2/<0.2	MFL	ND	ND	ND	ND	ND
Color	SM2120B	3	5	--	<3/--	<5/<5	CU	15	50	8	6	5
Cyanide (total)	10-204-00-1X	0.002	0.1	0.15	<100/--	<100/--	mg/L	ND	ND	ND	ND	ND
Hardness, Total	SM2340B	1	5	--	--	--	mg/L	121	158	187	218	220
MBAS, calculated as LAS, mw 340	SM5540C	0.03	0.05	0.5*	<0.05/--	<0.05/<0.1	mg/L	ND	ND	ND	ND	ND
Odor	EPA 140.1		1	--	2/--	0.73/1.4	T.O.N.	ND	ND	ND	ND	ND
pH	SM4500-H+ B	1.68	1.68	6.5-8.5	--	--	pH Units	7.4	7.48	7.43	7.35	7.56
Specific Conductance (EC)	SM2510B	1	20	--	934/1,924	680/1,085	µmhos/cm	390	530	550	560	520
Total Dissolved Solids	SM2540C	5	10	1000/500*	549/1,122	410/648	mg/L	230	310	310	330	310
Turbidity	SM2130B	0.05	0.1	5*	0.18/47	0.26/2.7	NTU	18	36	1.6	0.45	0.08
PESTICIDES												
Alachlor	EPA 507	0.5	1	2	--	--	µg/L	ND	ND	ND	ND	ND
Atrazine	EPA 507	0.3	0.5	1	--	--	µg/L	ND	ND	ND	ND	ND
Carbofuran	EPA 531.1	0.9	5	18	--	--	µg/L	ND	ND	ND	ND	ND
Chlordane (tech)	EPA 508	0.03	0.1	0.1	--	--	µg/L	ND	ND	ND	ND	ND
Endrin	EPA 508	0.03	0.1	2	--	--	µg/L	ND	ND	ND	ND	ND
HCH-gamma (Lindane)	EPA 508	0.01	0.2	0.2	--	--	µg/L	ND	ND	ND	ND	ND
Heptachlor	EPA 508	0.01	0.01	0.01	--	--	µg/L	ND	ND	ND	ND	ND
Heptachlor epoxide	EPA 508	0.01	0.01	0.01	--	--	µg/L	ND	ND	ND	ND	ND
Hexachlorobenzene	EPA 508	0.01	0.5	1	--	--	µg/L	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	EPA 508	0.04	1	50	--	--	µg/L	ND	ND	ND	ND	ND
Methoxychlor	EPA 508	0.02	10	30	--	--	µg/L	ND	ND	ND	ND	ND
Molinate	EPA 507	0.2	2	20	--	--	µg/L	ND	ND	ND	ND	ND
Oxamyl	EPA 531.1	1	20	50	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1016	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1221	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1232	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1242	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1248	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1254	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
PCB-1260	EPA 508	0.03	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
Simazine	EPA 507	0.3	1	4	--	--	µg/L	ND	ND	ND	ND	ND
Thiobencarb	EPA 507	0.2	1	70	--	--	µg/L	ND	ND	ND	ND	ND
Total PCBs	EPA 508	0.3	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
Toxaphene	EPA 508	0.4	1	3	--	--	µg/L	ND	ND	ND	ND	ND
HERBICIDES												
2,4,5-TP (Silvex)	EPA 515.1	0.5	1	50	--	--	µg/L	ND	ND	ND	ND	ND
2,4-D	EPA 515.1	0.8	10	70	--	--	µg/L	ND	ND	ND	ND	ND
Bentazon	EPA 515.1	0.4	2	18	--	--	µg/L	ND	ND	ND	ND	ND
Dalapon	EPA 515.1	6	10	200	--	--	µg/L	ND	ND	ND	ND	ND
Dinoseb	EPA 515.1	0.8	2	7	--	--	µg/L	ND	ND	ND	ND	ND
Pentachlorophenol	EPA 515.1	0.2	0.2	1	--	--	µg/L	ND	ND	ND	ND	ND
Picloram	EPA 515.1	0.5	1	500	--	--	µg/L	ND	ND	ND	ND	ND

Table 6 Morgan Park Wells Groundwater Quality Results (continued)

					Santa Clara Plain Median [a]			Morgan Park Monitoring Well No.				
								5	4	3	2	1
ANALYTE	**METHOD**	**DL**	**RL**	**MCL**	**Shallow Aquifer Zone [b]**	**Principal Aquifer Zone [b]**	**UNITS**	**90-105 (ft-bgs)**	**132-147 (ft-bgs)**	**03210-230 (ft-bgs)**	**275 - 295 (ft-bgs)**	**370-390 (ft-bgs)**
1,2-Dibromo-3-chloropropane	EPA 504.1	0.004	0.01	0.2	--	--	µg/L	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	EPA 504.1	0.005	0.02	0.05	--	--	µg/L	ND	ND	ND	ND	ND
Diquat	EPA 549.2	2	4	20	--	--	µg/L	ND	ND	ND	ND	ND
Endothall	EPA 548.1	20	45	100	--	--	µg/L	ND	ND	ND	ND	ND
Glyphosate	EPA 547	3	25	700	--	--	µg/L	ND	ND	ND	ND	ND
VOCS												
1,1,1-Trichloroethane	EPA 524.2	0.4	0.5	200	--	--	µg/L	ND	ND	0.94	3.9	2.9
1,1,2,2-Tetrachloroethane	EPA 524.2	0.5	0.5	1	--	--	µg/L	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	EPA 524.2	0.5	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
1,1-Dichloroethane	EPA 524.2	0.4	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
1,1-Dichloroethene	EPA 524.2	0.3	0.5	6	--	--	µg/L	ND	ND	0.39	4.5	**6.1**
1,2,4-Trichlorobenzene	EPA 524.2	0.4	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	EPA 524.2	0.5	0.5	600	--	--	µg/L	ND	ND	ND	ND	ND
1,2-Dichloroethane	EPA 524.2	0.5	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
1,2-Dichloropropane	EPA 524.2	0.5	0.5	6	--	--	µg/L	ND	ND	ND	ND	ND
1,3-Dichloropropene (total)	EPA 524.2	0.3	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	EPA 524.2	0.5	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
Benzene	EPA 524.2	0.3	0.5	1	--	--	µg/L	ND	ND	ND	ND	ND
Benzo(a)pyrene	EPA 525.2	0.01	0.02	0.20	--	--	µg/L	ND	ND	ND	ND	ND
Carbon tetrachloride	EPA 524.2	0.3	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
Chlorobenzene	EPA 524.2	0.5	0.5	70	--	--	µg/L	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	EPA 524.2	0.4	0.5	6	--	--	µg/L	ND	ND	ND	ND	ND
Di-(2-Ethylhexyl)adipate	EPA 525.2	0.06	0.60	400	--	--	µg/L	ND	ND	ND	ND	ND
Di(2-Ethylhexyl)phthalate	EPA 525.2	0.15	0.60	4	--	--	µg/L	ND	ND	ND	ND	ND
Ethylbenzene	EPA 524.2	0.5	0.5	300	--	--	µg/L	ND	ND	ND	ND	ND
Methyl tert-butyl ether	EPA 524.2	0.5	3	5	--	--	µg/L	ND	ND	ND	ND	ND
Methylene chloride	EPA 524.2	0.4	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
Styrene	EPA 524.2	0.5	0.5	100	--	--	µg/L	ND	ND	ND	ND	ND
Tetrachloroethene	EPA 524.2	0.5	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
Toluene	EPA 524.2	0.3	0.5	150	--	--	µg/L	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	EPA 524.2	0.4	0.5	10	--	--	µg/L	ND	ND	ND	ND	ND
Trichloroethene	EPA 524.2	0.5	0.5	5	--	--	µg/L	ND	ND	ND	ND	ND
Trichlorofluoromethane	EPA 524.2	0.5	5	150	--	--	µg/L	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	EPA 524.2	0.4	10	1200	--	--	µg/L	ND	ND	ND	ND	0.64
Vinyl chloride	EPA 524.2	0.5	0.5	0.5	--	--	µg/L	ND	ND	ND	ND	ND
Xylenes (total)	EPA 524.2	0.5	0.5	1750	--	--	µg/L	ND	ND	ND	ND	ND
DIOXIN												
2,3,7,8-TCDD (Dioxin)		2.00	2.00	30.00	--	--	pg/L	ND	ND	ND	ND	ND
RADIONUCLIDES												
Gross Alpha	900.0			15	--	--	pCi/L	0.473 +/- 0.670	0.311 +/- 0.932	0.500 +/- 0.709	1.36 +/- 0.660	1.93 +/- 0.747
Gross Beta	900.0			50	--	--	pCi/L	1.21 +/- 0.718	1.63 +/- 1.07	0.763 +/- 0.669	0.648 +/- 0.579	0.494 +/- 0.588
Radium 228	Ra - 05			5	--	--	pCi/L	0.044 +/- 0.310	0.016 +/- 0.265	0.000 +/- 0.231	0.000 +/- 0.209	0.000 +/- 0.234
Strontium 90	905.0			8	--	--	pCi/L	0.171 +/- 0.475	0.000 +/- 0.472	0.477 +/- 0.370	0.782 +/- 0.434	0.216 +/- 0.306
Total Alpha Radium (226)	903.0			5	--	--	pCi/L	0.084 +/- 0.123	0.084 +/- 0.123	0.000 +/- 0.123	0.000 +/- 0.123	0.000 +/- 0.123
Tritium	906.0			20,000	--	--	pCi/L	323 +/- 267	277 +/- 266	57.9 +/- 272	200 +/- 276	42.1 +/- 272

MCL -	Maximum contaminant level	NU -	No units (unitless)
EPA -	U.S. Environmental Protection Agency	CU -	Color Units
mg/L -	Milligrams per liter or parts per million (ppm)	T.O.N. -	Threshold odor number
µg/L -	Micrograms per liter or parts per billion (ppb)	umhos/cm -	Micromhos per centimeter
< -	Less than	NTU -	Nephelometric turbidity unit
ND -	Not detected	pg/L -	Picograms per liter
TDS -	Total Dissolved Solids	pCi/L -	Picocurries per liter
DL -	Detection Limit	SO_4	Sulfate
RL -	Reporting Limit	$CaCO_3$ -	Calcium Carbonate
VOC -	Volatile Organic Compounds	LAS -	Linear Alklylbenzene Suphonates
MBAS -	Metyl blue active substances	ft-bgs -	screened interval in feet below ground surface
* Secondary MCL		MFL -	millions of fibers per liter

Bold result values indicates exceedence of Primary or Secondary MCL

a - Includes District monitoring data (2006 to 2015) from monitoring and domestic wells and public water system data reported to the CA Division of Drinking Water (DDW). For parameters analyzed more than once at a given well over the 10-year period, the most recent data is used.

b - Shallow aquifer zone is typically less than 150 feet below ground surface (ft-bgs) and Principal aquifer zone is typically greater than 150 ft-bgs.

7.5.3 Water Quality Results

Almost all constituents were detected below their relevant MCL or secondary maximum contaminant level (SMCL) as shown in **Table 6**. The table also provides the 50th and 95th percentile median concentrations from data compiled and collected by the District over a ten-year period (2006 to 2015) for wells screened in the shallow aquifer zone (typically less than 150 ft-bgs) and the principal aquifer zone (typically greater than 150 ft-bgs) (District, 2016). 1,1-Dichloroethene (1,1-DCE) was detected above its MCL of 6.0 µg/L in Morgan Park 1 (at 6.1 µg/L) and below the MCL but above the detection limits in Morgan Park 3 and Morgan Park 2. 1,1,1-Trichloroethane (1,1,1-TCA) was detected above the detection limit but below its MCL in Morgan Park 3, Morgan Park 2 and Morgan Park 1. Trichlorotrifluoroethane was detected above the detection limit but below its MCL in Morgan Park 1. The District reports that 1,1,1-TCA is also detected at low levels in the District's Campbell Well Field on West Campbell Avenue (07S01W27P009 and 07S01W27P010). The District's McGlincy nested wells located near the McGlincy Ponds, part of the Los Gatos Ponds Recharge System, have also had chlorinated solvent detections (trichloroethylene and 1,1-DCE). The contamination is thought to originate from contaminant release sites located on Dell Ave. (Mohr, 2017).

Aluminum was detected above its MCL in Morgan Park 5 and above its SMCL in Morgan Park 4. Iron was detected above its SMCL in Morgan Park 5 and Morgan Park 4 and manganese was detected above its SMCL in Morgan Park 5. While well monitoring data sheets (**Appendix N**) indicate that the wells were purged until turbidity readings were 5 NTU or less, the laboratory results indicate that the turbidity levels in Morgan Park 5 and 4 were above 5 NTU. High turbidity can result in elevated concentrations of metals such as aluminum, iron and manganese.

Stiff and Piper diagrams for the general minerals detected in the wells are shown in **Figure 24**. These diagrams are useful tools in water analysis interpretation (Hem, 1989). The blue shaded region on the Piper diagram represents the major-ion composition of streamflow from Permanente and Saratoga Creeks on the west side of the valley (Newhouse, et al., 2004). The yellow shaded region represents the imported water used, in part, for artificial recharge, and represents samples that precede and span the 1976–77 drought (Newhouse, et al., 2004). The samples from deeper monitoring wells (Morgan Park 2 and 1) show very similar Stiff diagram shapes and plot in similar areas on the Piper diagram. The two deep wells also group with streamflow quality from the western side of the valley as shown by the blue shaded area. In contrast, the three shallower monitoring wells (Morgan Park 5, 4 and 3) show variable Stiff diagram shapes and plot over a wider area of the Piper diagram.

7.5.4 Water Quality Conclusions

Per the DDW GRRP regulations, four quarters of groundwater sampling should be collected to establish background conditions prior to start-up of an IPR project. The constituents monitored should be approved by DDW and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The volatile organic compounds (VOCs) detected in the monitoring wells during this initial round of sampling are thought to originate from contaminant release sites located on

Dell Ave., representing background conditions. Since the Los Gatos Ponds have been operated as recharge facilities for many years and have operated at maximum recharge capacity in some years, groundwater flow patterns from the ponds will not change with the addition of purified water recharge. Therefore, the VOCs in the background groundwater are not expected to be mobilized by the recharge of purified water.

Purified water will have very low levels of inorganics, which are expected to improve groundwater quality with respect to constituents such as TDS, chloride, nitrate, sulfate and others. Testing of the purified water conducted for the dilution study showed all constituents were either not detected above the reporting limit or below their associated MCL, SMCL or notification level. The Dissolution Testing Section (**Section 8**) describes testing done to assess dissolution of naturally-occurring minerals and metals resulting from recharge of purified water.

Elevated aluminum, iron and manganese detected in Morgan Park 4 and 5 appear to be the result of elevated turbidity in those samples. The District may want to consider field filtering and removing acid preservative in containers of metals samples to eliminate the potential for high turbidity samples showing elevated metals concentrations.

The Piper and Stiff diagrams did not show any clear patterns/relationships among different types of recharge water and different well depths. Nonetheless, these types of analyses are recommended as they can be used to assess the movement of purified water after IPR operations are initiated.

8 Dissolution Testing

When water types with different water chemistries interact with subsurface sediments (such as purified water), the compatibility of such waters with unsaturated/vadose zone and aquifer materials requires examination because of the potential for adverse chemical reactions (e.g. leaching of naturally-occurring but potentially toxic metals). Adding purified water to the unsaturated zone and aquifers may cause toxic trace elements such as arsenic, chromium, lead, and mercury to desorb and dissolve from mineral surfaces in the unsaturated or vadose zone. A secondary concern when introducing a different water type is the potential for reduction in aquifer permeability resulting from cation exchange and changes in the mineral structures of clay sediments or from precipitation of calcite. Because the dissolved mineral content of purified water is very low, neither structural changes to aquifer solids nor precipitation of solutes is a concern.

Soil samples were collected from sonic borings at the Ford, Page, and McGlincy Ponds and Morgan Park monitoring well sites for dissolution testing. The purpose of the dissolution testing is to evaluate the potential for dissolution (leaching) of naturally-occurring minerals and metals in the vadose and saturated zone aquifer solids that could impact groundwater quality. Vadose zone soil samples were collected from sonic borings at the Ford, Page and McGlincy Recharge Pond areas. Saturated zone samples were collected from the Morgan Park monitoring wells sonic boring. All soil, liquid, leaching, and extraction analytical work was conducted by McCampbell. The District’s laboratory also analyzed the advanced oxidation process (AOP) influent and effluent produced at the District’s Silicon Valley Advanced Water Purification Center (SCVAWPC). The effluent water quality represents the purified water to be recharged in the GRRPs. Groundwater samples from the Morgan Park multi-completion monitoring wells, located downgradient of the Los Gatos Ponds, were analyzed by Alpha Analytical.

The dissolution analyses performed included the following:

- Soil quality testing for environmental contaminants for vadose zone samples,
- Purified water quality analysis,
- Water quality analysis of two different stabilized (buffered) purified water formulation recipes (Doses 1 and 2) for the vadose zone samples,
- Water quality analysis of two different stabilization (buffered) purified water formulation recipes (Doses 3 and 4) for the saturated zone samples,
- Soil leaching test using a modified U.S. Environmental Protectino Agency (USEPA) Synthetic Precipitation Leaching Procedure (SPLP),
- Hydroxylamine-Hydrochloride (Ha-HCl) extraction test (to estimate the potential for metals to desorb into solution), and
- Geochemical modeling of vadose and saturated zone leaching and extraction tests, to determine which inorganic solutes are likely to remain in solution with potential to affect water quality.

All McCampbell and District analytical reports are included in **Appendix P**. Alpha Analytical reports are provided in **Appendix O**. Due to size, **Appendices O** and **P** are included as a separate Adobe Acrobat™ file from the remainder of this report. The procedures provided by Todd to McCampbell for the modified SPLP leaching test and Ha-HCl extraction work are included in **Appendix Q**.

8.1 Soil Quality Sampling

Figures 9, **10** and **11** shows the depths where soil samples were collected for quality analysis from the vadose zone. **Figure 23** shows the depths where samples were collected in the saturated zone. The vadose zone soil quality sampling was conducted to determine if any environmental contamination, such as from leaking tanks or surface spills or legacy contamination from historical agricultural land use, is present beneath or near the proposed IPR sites. Solid soil samples shown on the logs in **Appendix E** as a single depth (i.e., 9.0 ft-bgs) were sonic grab samples collected in glass jars and analyzed for nitrate as nitrate, nitrate as nitrogen and perchlorate. Samples shown as a six-inch range of depths (i.e., 8.5-9.0 ft-bgs) were brass tube core samples and analyzed for VOC and semi-volatile organic compounds (SVOCs). Summary tables of the soil quality analytical results are included in **Appendix R** as **Table R-1** through **Table R-5**.

Almost all soil samples showed no detectable levels of environmental contaminants. **Table 7** lists the two samples with detections, one each from the Sonic 1 located on the County-owned property adjacent to the Ford Pond sites and one from Sonic 4 located in the Page Ponds area. Butylbenzene phthalate was detected in Sonic 1 at 12.5 to 13.0 ft-bgs. This is a chemical that has been identified in laboratory blank samples (Little, et al., 1998) and the detection may be the result of laboratory cross contamination. Tetrachloroethene (PCE) was detected in Sonic 4 at 155.0 to 155.5 ft-bgs. PCE is a common VOC detected at many environmental release sites and is the main contaminant associated dry cleaner sites. The detection was just slightly higher than reporting limit. PCE was not detected in groundwater from the Morgan Park monitoring wells downgradient from the Page Ponds; however, it is noted that the Morgan Park wells are located almost ¾ of a mile north of the Page Ponds.

Table 7 Chemical Detections in Soil Samples

Constituent	RL	Detection (mg/kg)	Sonic boring	Site	Depth (ft-bgs)
Butylbenzene Phthalate	0.25	**1.9**	1	County-Owned Property Adjacent to Ford Pond	12.5-13.0
Tetrachloroethene	0.005	**0.0079**	4	Page Ponds	155.0-155.5

RL – reporting limit mg/kg – milligrams per kilograms ft-bgs – feet below ground surface

8.2 Purified Source Water and Stabilized (Buffered) Purified Water Results

Sixty gallons of purified water was collected from the SVAWPC. Treatment processes at the SVAWPC include reverse osmosis, micro-filtration, ultraviolet light (UV) and AOP. Lamps for the UV treatment were operated at full power, i.e. 1,150 microjoules per square centimeter and the AOP included a hydrogen peroxide dose of 6 mg/L. Similar purified water quality is expected to be generated for the IPR projects. The District analyzed AOP influent and effluent (see **Appendix R**, **Table R-6**) and McCampbell also analyzed the delivered raw AOP effluent (purified water) (see **Appendix R**, **Table R-7**).

HDR, a consultant to the District providing support for the IPR planning studies, provided direction to the laboratory regarding purified water conditioning, also referred to as stabilizing or buffering, to be performed prior to dissolution testing. The buffering solutions were developed by HDR with the dual objectives of protecting the purified water transmission piping and fittings from corrosion and preventing dissolution of harmful constituents from vadose zone or aquifer materials into groundwater (HDR, 2017). McCampbell conducted the stabilization and the complete stabilized purified water analytical results are provided in **Appendix R**, **Table R-8**. Two rounds of leachate testing were conducted. The first round included vadose zone soil samples collected from the Ford Pond site and adjacent County-owned property and Page and McGlincy Ponds sites. The second round of sampling included saturated zone samples collected during drilling of the Morgan Park monitoring wells. Prior to the first round of dissolution testing, two dosing strategies (Doses 1 and 2) were developed by HDR. Both had the same target pH of 8.5 but used different alkalinity agents (sodium carbonate and sodium hydroxide). pH is the primary characteristic controlling dissolution of naturally-occurring metals in the soil. **Table 8** provides the target water quality goals and **Table 9** provides the water quality achieved by the laboratory and used for the dissolution testing. The first round of dissolution testing indicated that a pH of 8.5 resulted in Cr^{+6} detections in leachate at concentrations approaching but below its former MCL of 10 µg/L in two of 29 samples tested. For the second phase of testing, pHs of 8.0 and 8.5, Doses 3 and 4, respectively, were established as targets using only one alkalinity agent (sodium carbonate) to assess results from a range of pHs. Cr^{+6} was not elevated in the leachate from any of the samples from the second round of sampling.

Alkalinity and hardness as calcium carbonate, pH, total dissolved solids (TDS) and Langelier Index (LI) analysis were performed on the buffered purified water (Doses 1, 2, 3, and 4) just prior to the SPLP leaching tests and those results are shown in **Table 9** for comparison with the target goals. The remaining parameters (speciated alkalinity, ions, metals and other physical and chemical parameters) were analyzed separately within one week of the start of the SPLP leaching tests. Those results are presented in **Table R-8** in **Appendix R**.

Table 8 Target Stabilized Recycled Water Quality

Parameter	Target Level to Protect Mortar Lined Pipes	Dose 1 $CaCl_2$ /NaOH	Dose 2 $CaCl_2$ /Na_2CO_3	Dose 3 $CaCl_2$ /Na_2CO_3	Dose 4 $CaCl_2$ /Na_2CO_3
Chemical Dose, mg/L					
CO_2				6.6	7.7
$CaCl_2$		45	45	44	44
NaOH		3.77			
Na_2CO_3			10.1	20.3	20.4
Alkalinity, mg/L as $CaCO_3$	45	32	37	45	45
Hardness, mg/L as $CaCO_3$	40	41	41	40	40
pH	7.5 – 9.0	8.5	8.5	8.5	8.0
Langelier Index	-0.5 - +0.5	-0.09	+0.03	+0.03	-0.47

$CaCL_2$ – calcium chloride
NaOH – sodium hydroxide
Na_2CO_3 – sodium carbonate
mg/L – milligrams per liter
$CaCO_3$ – calcium carbonate
CO_2 – carbon dioxide

Table 9 Measured Stabilized Recycled Water Quality

Parameter	Target Level to Protect Mortar Lined Pipes	Dose 1 $CaCl_2$ /NaOH	Dose 2 $CaCl_2$ /Na_2CO_3	Dose 3 $CaCl_2$ /Na_2CO_3	Dose 4 $CaCl_2$ /Na_2CO_3
Chemical Dose, mg/L					
$NaHCO_3$				12.3	16.6
$CaCl_2$		45	45	44	44
NaOH		5.38			
Na_2CO_3			14.45	8	4
Alkalinity, mg/L as $CaCO_3$	45	32	39	43	39
Hardness, mg/L as $CaCO_3$	40	41	41	40	40
pH	7.5 – 9.0	8.5	8.5	8.72	7.99
Langelier Index	-0.5 - +0.5	-0.09	-0.01	0.28	-0.49

$CaCl_2$ – calcium chloride
NaOH – sodium hydroxide
Na_2CO_3 – sodium carbonate
mg/L – milligrams per liter
$CaCO_3$ – calcium carbonate
CO_2 – carbon dioxide

8.3 Modified SPLP Soil Leaching Test Results

The SPLP leaching test (USEPA Method 1312) is designed to determine the mobility of both organic and inorganic analytes present in liquids, solids and wastes. Modified SPLP leaching tests performed for this study included the following procedures and are described in more detail in **Appendix Q**:

- A 1:5 ratio of soil sample to buffered purified water was prepared (160 grams of soil to 800 milliliters (mL) of extraction fluid)). Compared to the 1:20 ratio used in Method 1312, the 1:5 ratio better simulates subsurface geochemical conditions during recharge and, in turn, provides more meaningful results in support of the geochemical modeling assessment.
- The modified SPLP procedure is a batch-reactor test. The test was conducted over a seven-day period (compared to 18 hours of tumbling time in Method 1312) to better simulate subsurface geochemical conditions during recharge and, in turn, provided more meaningful results in support of the geochemical modeling assessment.
- Samples were agitated for one minute, twice a day (morning and afternoon). This reduction in rotation time compared to that specified in Method 1312 was to minimize the potential for elevated turbidity in final leachate and the potential for erroneous metals concentrations.

At the completion of the seven-day period, the leachate solution was centrifuged for 12 hours at 1,500 revolutions per minute and each vial from the completed centrifuged leachate was filtered through a 0.45 micrometer (µm) filter prior to analysis to further reduce false or elevated detections due to turbidity.

- The filtered leachate was then analyzed for the following parameters:
    - Metals, including arsenic, chromium and hexavalent chromium
    - Nitrate as nitrogen and nitrate as nitrate
    - Perchlorate
    - Oxygen Reduction Potential (ORP)
    - pH

Modified SPLP leaching tests were performed using the four different stabilized purified water solutions as described in **Table 9**. Doses 1 and 2 were used for the vadose zone samples and Doses 3 and 4 were used for the saturated zone samples.

Tables R-9 through **R-14** in **Appendix R** provide the SPLP solid core leachate results for the Dose 1, 2, 3 and 4 leaching tests. Metals are the main constituents of concern with respect to purified water leaching potential. Most SPLP metal leaching results were non-detect for metals including antimony, beryllium, cadmium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, uranium and zinc. Manganese was detected in Sonic 1 (County-owned property adjacent to Ford Pond site), Sonic 4 (Page Ponds) and Sonic 5 (McGlincy Ponds). However, manganese was mostly absent from the remaining leachate samples because it probably occurs as relatively insoluble manganese oxides (e.g., MnO_2) when Mn^{+4} is present. A manganese stability diagram (Eh-pH diagram) (Hem,1989) is shown in **Figure 25**. The figure charts the distribution of manganese solid (Mn^{+4}) and dissolved manganese (Mn^{+2}) species. At a pH of approximately 7.5, Mn^{+2} concentrations are about 0.55 mg/L (550 µg/L) but as the pH increases above 8, solubility drops to 55 µg/L. More recent work by Takeno (2005) shows similar distributions of manganese species.

Nitrate was detected in the leachate generally ranging from 2.2 mg/L to 2.4 mg/L. A review of the analytical results shows that the purified water prior to buffering (see **Tables R-6** and **R-7** in **Appendix R**) had nitrate as nitrogen concentration of at 2.3 mg/L and nitrate as nitrate concentration at 10 mg/L. Therefore, the leachate results for nitrate are not indicative of actual soil nitrate but of nitrate concentrations in the purified water. The nitrate as nitrogen MCL is 10 mg/L.

Molybdenum was detected in all the leachate results, but concentrations were generally low with all samples less than 20 µg/L and most less than 10 µg/L.

Total chromium and chromium Cr^{+6} were detected in all leachate samples, but again, at low concentrations less than 4 µg/L. Cr^{+6} was detected in two samples at concentrations above 4 µg/L (6.6 and 6.8 µg/L), but below the former MCL of 10 µg/L. The Cr^{+6} MCL was invalidated by the Superior Court of Sacramento County effective September 11, 2017. The significance of these detections is discussed in the geochemical modeling section (**Section 8.5**). **Table 10** presents a summary of chromium, Cr^{+6}, arsenic, molybdenum and pH results from the SPLP soil core leaching tests.

As shown in the table there is very little difference between the Dose 1 and Dose 2 results. Although, the two elevated Cr^{+6} results correspond to the highest pH results, this is because pH is the driving factor controlling trivalent chromium (Cr^{+3}) solubility. The chromium does not complex with the carbonate, which has been added to the purified water to buffer the water. Based on the dissolution results, there is no effect caused by the buffering agents.

8.4 Ha-HCl Extraction Soil Testing

In addition to the modified SPLP extraction method, a Ha-HCl Extraction Test was performed on selected soil samples. The Ha-HCl procedure measures the amount of hydrous ferric oxide (HFO), typically ferrihydrite, in a soil sample. HFO is considered to be the primary adsorbent for metals in soils, including complex oxyanions such as chromate (CrO_4^{2-}). HFO has a positive surface charge, up to a pH of about 8, and thus acts as a “storage” site for Cr^{+6} oxyhydroxides.

Ha-HCl extraction testing is useful for estimating the potential for metals to desorb into solution as recharged purified water flows through the vadose zone. The analytical Ha-HCl procedure is described in **Appendix Q**. Summary tables of the HH-HCl Extraction Test results are presented in **Tables R-15** through **R-20** in **Appendix R**.

Table 10 Summary of Selected Metals for SPLP Soil Leachate

Sample Location	Depth (ft-bgs)	Dose	Cr (µg/L)	Cr^{+6} (µg/L)	pH	As (µg/L)	Mo (µg/L)
MCL			50	10[a]	NA	10	NA
Sonic 1	15	Dose 1	4.1	3.8	8.33	1.3	7.3
		Dose 2	4	3.7	8.38	1.2	7.1
	20	Dose 1	0.66	0.37	8.09	<0.5	9.7
		Dose 2	0.67	0.38	8.13	<0.5	9.7
	30	Dose 1	0.7	0.39	8.2	1.2	8.1
		Dose 2	0.67	0.39	8.28	1.3	8.9
Sonic 2	10	Dose 1	6.9	**6.6**	8.53	1.7	8.8
		Dose 2	6.8	**6.8**	8.51	1.7	8.7
	25	Dose 1	0.82	0.55	8.1	0.52	5.8
		Dose 2	0.79	0.39	7.88	0.53	5.6
	35	Dose 1	0.98	0.72	8.09	0.98	10
		Dose 2	1.2	0.87	8.17	0.98	11
Sonic 3	10	Dose 1	1	0.73	7.97	0.55	3.3
		Dose 2	1.3	0.96	8.01	<0.5	3.5
	15	Dose 1	0.97	0.67	7.82	<0.5	2.4
		Dose 2	1.1	0.77	7.96	0.59	2.7
Sonic 4	17	Dose 1	0.71	0.47	7.87	0.6	2.7
		Dose 2	0.65	0.39	7.89	0.58	3.2
	23	Dose 1	0.7	0.4	7.85	<0.5	8
		Dose 2	0.74	0.4	7.96	<0.5	6.8
	50	Dose 1	0.87	0.6	7.83	<0.5	7.1
		Dose 2	0.97	0.76	7.88	<0.5	10
	65	Dose 1	0.61	0.34	7.86	0.54	17
		Dose 2	0.74	0.41	7.96	<0.5	13
	85	Dose 1	0.64	0.35	7.88	<0.5	14
		Dose 2	0.67	0.41	7.91	<0.5	13
	95	Dose 1	1.4	1.1	7.77	<0.5	4.2
		Dose 2	1.1	0.83	7.88	<0.5	4.3
	110	Dose 1	0.86	0.57	7.86	<0.5	9.3
		Dose 2	1.6	1.3	7.9	<0.5	6.8
	125	Dose 1	1	0.69	7.75	<0.5	12
		Dose 2	1.1	0.81	7.93	<0.5	13
	155	Dose 1	0.96	0.62	7.85	<0.5	6.2
		Dose 2	0.85	0.66	7.91	<0.5	4.1
Sonic 5	9	Dose 1	0.76	0.43	7.85	0.66	5
		Dose 2	0.54	0.31	7.95	0.71	4.6
	25	Dose 1	0.73	0.39	7.85	0.51	10
		Dose 2	0.8	0.5	7.95	0.54	12
	50	Dose 1	2.5	2.2	7.83	<0.5	2.8
		Dose 2	2.6	2.2	7.91	<0.5	2.8
	65	Dose 1	0.94	0.66	7.96	0.59	8.4
		Dose 2	0.71	0.38	7.94	0.64	9.6
	80	Dose 1	1.1	0.67	7.79	<0.5	4.2
		Dose 2	0.89	0.63	7.89	<0.5	5.1
	100	Dose 1	0.9	0.56	7.8	<0.5	2.3
		Dose 2	0.84	0.55	7.88	<0.5	2.1
	125	Dose 1	0.73	0.39	7.97	<0.5	5.4
		Dose 2	0.57	0.33	8.06	<0.5	7.1
	140	Dose 1	0.52	0.27	7.9	0.66	16
		Dose 2	0.51	0.23	7.95	0.74	19
	160	Dose 1	0.61	0.33	7.93	0.62	15
		Dose 2	0.71	0.41	8.07	0.62	12
Morgan Park	131	Dose 3	0.7	0.53	7.98	<0.5	5.3
		Dose 4	0.62	0.57	8.11	<0.5	5.4
	195	Dose 3	1.1	2.00	7.94	<0.5	3.6
		Dose 4	1.2	1.2	7.96	<0.5	3.4
	283	Dose 3	0.68	0.63	8.1	<0.5	6.6
		Dose 4	0.58	0.54	8.06	<0.5	7.5

ft-bgs – feet below ground surface
As – arsenic
Cr – chromium
Mo - molybdenum
Cr^{+6} - hexavalent chromium
µg/L - micrograms per liter
MCL - maximum contaminant level
NA - not applicable
SPLP - modified USEPA Synthetic Precipitation Leaching Procedure

Detections highlighted in bold indicate elevated detections, near by below the former MCL for Cr^{+6}.

a - The Sacramento Superior Court of Sacramento County issued a judgement invalidating the CR^{+6} MCL effective September 11, 2017. Old MCL of 10 µg/L provided for reference.

The constituents analyzed for the Ha-HCl extraction include the following:

- Aluminum
- Arsenic
- Calcium
- Copper
- Chromium (total)
- Chromium, hexavalent
- Iron (ferric)
- Lead
- Magnesium
- Manganese
- Mercury
- Selenium
- Silica/silicon
- Uranium
- Zinc

Additional findings from the Ha-HCl extraction and SPLP leaching tests are provided in the following section.

8.5 Geochemical Modeling

Tools that can be used to investigate the compatibility of purified water with unsaturated and saturated zone sediments include the SPLP leaching test discussed in **Section 8.3** and **Appendix Q** and geochemical modeling, which typically involves numerical computer programs simulating mineral dissolution and precipitation, oxidation and reduction reactions, cation exchange and adsorption/desorption of ions from mineral and rock particle surfaces comprising the unsaturated/vadose zone matrix. Because hundreds of minerals share many elements (e.g., metals) in common, such models apply numerical computations to simultaneously solve thousands of equations representing the thermodynamics of the various mineral and equilibrium reactions. Therefore, geochemical models draw on large databases of experimentally-derived coefficients.

This study used the geochemical modeling codes developed by the U.S. Geological Survey (USGS) PHREEQC model of Parkhurst and Appelo (2013), which is in the public domain and may be freely downloaded. PHREEQC is a collection of several different aqueous chemistry models and is widely used for such investigations. PHREEQC determines mineral speciation and saturation-indices, ion-exchange equilibria, geochemical reactions, solution mixing and system response to pressure and temperature changes. In simple terms, PHREEQC predicts which forms of mineral compounds will remain stable in solution when water of a specific and known chemistry reacts with an aquifer of a specific mineralogy. The PHREEQC model output is relevant to IPR planning because it predicts whether problematic water quality conditions may result from replenishing groundwater with purified water. Geochemical models based upon PHREEQC have been used in a wide range of applications. Numerous peer reviewed publications have been prepared over the last 20 years since the release of PHREEQC that demonstrate the capabilities of this program (Langmuir et al., 2007; Mahoney et al., 2005; and Mahoney et al., 2005). Results from these models have been accepted by various regulatory agencies. Several textbooks, such as the one by Appelo and Postma (2006) and another by Merkel et al. (2008) provide a wide range of application and examples. The book by Appelo and Postma provides numerous worked examples and cites many other papers that use PHREEQC to evaluate environmental issues. The modeling was conducted by Mahoney Geochemical Consulting, LLC (Mahoney). A technical memorandum prepared by Mahoney describing the analysis is included in **Appendix S**.

The initial step in such a geochemical modeling study is to define a conceptual model of the flow system, including flow paths and rates, the elements and minerals present in the aquifer and the types of reactions that might occur. Data from laboratory chemical analyses of the rock and fluid phases are then incorporated and parameters are adjusted if needed to successfully simulate either purified water and/or existing groundwater quality. The model can then be used to test hypotheses about possible reactions, test the sensitivity of simulated concentrations to parameters such as pH and simulate proposed project operation.

8.5.1 Complexation Model within PHREEQC

Metals in unsaturated/vadose zone materials adhere to sediment surfaces by a combination of chemical bonding and electrostatic forces, and the overall process is called adsorption. The ratio of adsorbed ions to ions in solution varies widely by element and is influenced by the total amount of that element in the system, the types and areas of mineral surfaces, the types and concentrations of other metallic elements present and the pH, temperature and composition of the solution. Under natural flow conditions, it is possible for adsorbed ions to desorb when different water types are injected or allowed to leach to the subsurface, because many adsorption-desorption processes are sensitive to pH. **Figure 26** shows the percentage adsorption of different cations and oxyanions under different pH condition.

PHREEQC contains a database for surface complexation of heavy metal ions on HFO which bind the metal ions on strong and weak surface sites. To aid in defining the amount of element sorption to HFO, a diffuse layer surface complexation model within the PHREEQC program was used. Further descriptions of surface complexation modeling can be found in Mahoney (2013a, Appendix L). The diffuse layer model estimates the surface sorption site concentrations of elements based on the amount of HFO in the sample. This is determined using the Ha-HCl extraction method and measurement of a soil's HFO-content, the primary adsorbent for arsenic and chromium (as Cr^{+3} and Cr^{+6}) and other divalent metals (Mahoney, 2013b). Ha-HCl has low pH and high chloride concentration, which reduces the sample's HFO-content and stabilizes the dissolved ferrous iron. The analytical results for metals on the Ha-HCl extract can be used to model trace metal adsorption/desorption and surface complexation.

Results from the Ha-HCl extractions of the soil samples are provided in **Tables R-15** through **R-20** in **Appendix R** and in **Table 11**. The table also presents calculation of the initial HFO surface site concentrations. The first column soil sample from the Sonic 1 sample at 1.0 to 15 ft-bgs was used for these models because most of the extraction results showed very similar quantities of HFO-content.

For the Ha-HCl extractions the amount of extractable iron [amorphous Fe^{+3}] is assumed to represent the HFO in the sample. Therefore, the extractable concentration is converted to the mass of HFO used in the surface complexation model. In a similar manner, the strong and weak HFO sites are also calculated based upon these concentrations. The final values are based on the water to solid ratio, which is defined by the porosity. The SPLP tests used a 1:5 ratio of soil (160 grams) to buffered purified water (800 milliliters mL). In the transport models, a 30 percent porosity was used based on laboratory porosity test results and the amount of water was adjusted to match the different water to solid proportion.

PHREEQC assumes that surface ionization and complexation (SICM) is equilibrium-based, so the amounts of trace metals on the surfaces can change due to changing conditions. For example, reductions in pH will tend to release any cations that were previously sorbed. Other variations in solution composition could also change the amounts of ions adsorbed on the surface.

As described in the Mahoney report provided in **Appendix S**, Eh-pH diagrams were prepared using PhreePlot (Kinniburgh and Cooper, 2011) within the PHREEQC geochemical program. PhreePlot allows for preparation of a wide variety of species distribution and activity plots with defined conditions such as pH and component concentrations (Mahoney, 2015). Eh-pH diagrams are important because they show the stable soluble species components under different Eh-pH conditions. **Figure 27** shows the relationship between pH and cation and oxyanion adsorption. As shown on the figure, under pH conditions of 8.0, which approximate site conditions, the HFO surface has a greater tendency to retain Cr^{+3} species rather than Cr^{+6} species. The Cr^{+3} species forms surface complexes at relatively low pH conditions and Cr^{+3} will be retained on that surface as the pH increases. Cr^{+6} however is an oxyanion and it sorbs at lower pH, but with increasing pH the surface charge on the HFO becomes more negative and the CrO_4^{-2} species will tend to desorb. **Figure 27** shows an adsorption edge for the cation Cr^{3+} at about a pH of 4. That is the pH where half of the chromium is sorbed. For Cr^{+6}, the desorption edge is at a pH of about 7.6. The figure has modified from Stumm (1992) and it applies to specific concentrations of HFO and the listed cations and anions. Increased proportions of HFO will tend to increase the sorption of these species and push the adsorption edges for cations to lower pH values and increase the pH of the desorption edges for cations to higher pH values.

8.5.2 Transport Modeling

The TRANSPORT module within PHREEQC was used to evaluate the long-term leaching potential and model flow in laboratory soil columns prepared using vadose zone and aquifer materials. The transport module is an extension of the PHREEQC model using the same input file.

Table 11 Summary of Ha-HCl Extraction Test Results

Sample Location	Sample Depth (ft-bgs)	Iron HH Extractable Conc. (mg/kg as Fe)	Mass of Rock in Contact with 1.0 L (kg)	Moles Ferrihydrite (HFO)	Site Concentration		Mass HFO (g/L)	Cr (mg/kg)
					Hfo_wOH in mol/L assuming 0.2/mol HFO	Hfo_sOH in mol/L assuming 0.005/mol HFO		
Sonic 1	15	22,000	0.20	0.079	0.016	0.00040	7.06	33
	25	25,000	0.20	0.090	0.018	0.00045	8.02	41
	30	27,000	0.20	0.097	0.019	0.00049	8.66	39
Sonic 2	10	24,000	0.20	0.087	0.017	0.00043	7.70	35
	25	25,000	0.20	0.090	0.018	0.00045	8.02	43
	35	21,000	0.20	0.076	0.015	0.00038	6.74	38
Sonic 3	10	17,000	0.20	0.061	0.012	0.00031	5.45	24
	15	21,000	0.20	0.076	0.015	0.00038	6.74	37
Sonic 4	17	20,000	0.20	0.072	0.014	0.00036	6.42	30
	23	19,000	0.20	0.068	0.014	0.00034	6.10	38
	50	19,000	0.20	0.068	0.014	0.00034	6.10	31
	65	19,000	0.20	0.068	0.014	0.00034	6.10	28
	85	21,000	0.20	0.076	0.015	0.00038	6.74	31
	95	21,000	0.20	0.076	0.015	0.00038	6.74	34
	110	21,000	0.20	0.076	0.015	0.00038	6.74	57
	125	21,000	0.20	0.076	0.015	0.00038	6.74	31
	155	19,000	0.20	0.068	0.014	0.00034	6.10	38
Sonic 5	9	23,000	0.20	0.083	0.017	0.00041	7.38	32
	25	20,000	0.20	0.072	0.014	0.00036	6.42	29
	50	19,000	0.20	0.068	0.014	0.00034	6.10	25
	65	19,000	0.20	0.068	0.014	0.00034	6.10	29
	80	19,000	0.20	0.068	0.014	0.00034	6.10	32
	100	19,000	0.20	0.068	0.014	0.00034	6.10	27
	125	19,000	0.20	0.068	0.014	0.00034	6.10	28
	140	22,000	0.20	0.079	0.016	0.00040	7.06	37
	160	24,000	0.20	0.087	0.017	0.00043	7.70	41
Morgan Park Samples	131	21,000	0.20	0.076	0.015	0.00038	6.74	33
	195	23,000	0.20	0.083	0.017	0.00041	7.38	30
	283	21,000	0.20	0.087	0.017	0.00043	7.70	52

Cr - chromium
g/L – grams per liter
mg/kg - milligram per kilogram
HFO – Hydrous ferrous oxides (ferrihydrite)
ft-bgs – feet below ground surface
1.0 L (kg) – 1.0 liters = 1.0 kilograms
mol - mole
mol/L - mol per liter
L - liter
Fe - iron
Hfo_sOH - PHREEQC diffuse layer model for strong sites for surface complexation
Hfo_wOH - PHREEQC diffuse layer model for weak sites for surface complexation on HFO

Mahoney (**Appendix S**) indicates the importance of pH and saturation index for amorphous chromium hydroxide (hereafter, $Cr(OH)_3(A)$) in that the Dose 1 SPLP leachate was consistently oversaturated with respect to $Cr(OH)_3(A)$, which means there is a reasonable expectation that the actual chromium concentrations could be lower than calculated by the model. Accordingly, any further modeling involving the precipitation of $Cr(OH)_3(A)$, particularly since it would produce even lower chromium concentrations, was not warranted**.** It is noted that Hem (1989) describes $Cr(OH)_3$ as a metastable hydroxide with a minimum solubility near 5 µg/L at a pH of 9.0. This supports Mahoney's modeling in that a pH of approximately 8.2 shows a consistent and steady $Cr(OH)_3(A)$ concentration line below 1.0 µg/L (**Figure 27**). Therefore, it's reasonable to assume that there would be no significant transport of chromium in the leachate water. Similar chromium and arsenic diagrams also indicate no significant increase in arsenic concentrations (arsenic increases from <1.0 to about 3.0 µg/L). The transport models described in **Appendix S** show concentrations consistently below 3 µg/L for arsenic.

8.5.3 Groundwater Chemistry

Mahoney (**Appendix S**) used PHREEQC to calculate the saturation index (SI) based on groundwater solution components. The program automatically calculates the saturation indices for all possible species based upon the parameters included in the input file. In this case, that is approximately 200 species, which are mostly minerals, but also a few gas species such as $CO_2(g)$ are included. Many of these are eliminated from further discussion because they represent minerals that are unique to very specific conditions and are not relevant to conditions for this study. The SI for a particular phase generally indicates whether the groundwater is undersaturated ($SI < 0$), at equilibrium ($SI = 0$), or supersaturated ($SI > 0$) with respect to that particular mineral. If groundwater is undersaturated with respect to a mineral, as indicated by a negative SI, the groundwater would theoretically dissolve the mineral, if present. Conversely, if groundwater is supersaturated with respect to a mineral, then the mineral would theoretically precipitate from the groundwater. Most calculated phases were either under- or over-saturated and could be eliminated because they were not controlling overall groundwater chemical composition. Five pertinent species (**Table 12**) were evaluated for saturation index calculations. Calcite was included, because calcium is normally added to increase the calcite saturation indices (similar to Langelier Index) and, in turn, reduce pipe corrosion potential. Two chromium species were also included, demonstrating Cr^{+3} stability; ferrihydrite $[Fe(OH)_3]$ was included because sorption onto this adsorbent commonly controls Cr^{+6}. Finally, the partial pressure of carbon dioxide gas ($CO_2(g)$ log atmospheres)) was included because it indicates possible biological activity.

Table 12 Summary of Saturation Index Calculations for Selected Species for Morgan Park Groundwater

Description		Saturation Indices				
	pH	Calcite	$Cr(OH)_3$(A)	Cr_2O_3	Ferrihydrite	CO_2 (gas)
Morgan Park 5	7.4	-0.48	0.42	2.73	2.82	-2.28
Morgan Park 4	7.48	-0.27	0.28	2.46	2.67	-2.35
Morgan Park 3	7.43	-0.31	0.27	2.43	1.59	-2.38
Morgan Park 2	7.35	-0.1	0.17	2.23	1.01	-2.07
Morgan Park 1	7.56	0.07	1.16	4.21	1.85	-2.34

CO_2 - carbon dioxide Cr_2O_3 - trivalent chromium oxide

$Cr(OH)_3$(A) saturation index based upon trivalent chromium concentration.

Chromium-species SIs were based on the calculated Cr^{+3} concentrations, determined by taking the total measured chromium concentrations minus corresponding Cr^{+6} concentrations from the same soil core SPLP tests. The two redox states were entered into PHREEQC to calculate redox conditions which are reported as pE and Eh for the redox couple (Cr^{+3}/Cr^{+6})). These were then used to plot the five samples shown on **Figure 27,** which is a contour plot of chromium concentrations with $Cr(OH)_3$(A) as the precipitating adsorbent. Because some groundwater samples had trace Cr^{+6} concentrations, calculated Eh values plotted close to the top of the Cr^{+3} stability field. Total chromium concentrations typically range from 1 to 3 µg/L, which this is consistent with the contour lines shown on **Figure 27** and with literature values (Hem, 1989). Therefore, the dominate form of chromium in these samples is Cr^{+3} and its concentration is controlled by the stability of $Cr(OH)_3$(A), because trivalent chromium oxide (Cr_2O_3) was consistently oversaturated. The proportion of Cr^{+6} to total chromium in the groundwater samples ranged from less than 0.06 to 0.29. The SPLP (Dose 3 and Dose 4) showed proportions greater than 0.4 for all samples, suggesting a tendency for the SPLP to oxidize more chromium to Cr^{+6}. This may be related to sample exposure to atmospheric oxygen during collection and during the leaching procedure itself. Sample agitation and the presence of dissolved oxygen may cause an artificial increase in Cr^{+6}.

Because carbon dioxide (CO_2(g)) is a gas phase in the PHREEQC database, it is referenced to a standard state of 1.0 atmosphere. Therefore the CO_2 SI is equivalent to its partial pressure. The calculated pressures range from $10^{-2.4}$ to $10^{-2.1}$ atmospheres, which is slightly elevated when compared to the atmospheric concentration of CO_2 ($10^{-3.4}$ atmospheres), suggesting possible biological (bacterial) activity in the sediments. Slight overpressures of CO_2(g) are common in many systems (Cole et al., 1994). In some soils, CO_2 partial pressures can reach $10^{-2.0}$ atmospheres. The SI values indicate that these samples are not in complete equilibrium with atmospheric CO_2. These elevated CO_2(g) values also suggest that pH buffering may be actively producing a lower pH in the formation, which could further decrease Cr^{+6} mobility.

8.6 Dissolution Study Conclusions

- Concentrations of most metals from the SPLP leaching tests (Dose 1, 2, 3, and 4) were generally low and all were below their associated MCL. Concentrations indicate that the alluvial sediments are not significant sources of metals leaching to groundwater when replenished with purified water.
- Arsenic was leached from the sediments, but concentrations were below the MCL, with most values below detection limit.
- Low concentrations of molybdenum, chromium and Cr^{+6} were leached from vadose and saturated soil samples tested. Cr^{+6} was detected at elevated concentrations (6.6 and 6.8 µg/L) in two leachate samples, but below the former MCL of 10 µg/L.
- Although some Cr^{+6} was identified in the Dose 1, 2, 3, and 4 leachates, the generally low concentrations observed suggest that most chromium in the sediments is not in "hexavalent" form, but rather in Cr^{+3} form. This is supported by results of Ha-HCl extraction tests. Some subsequent oxidation of this chromium may take place, but at this time, a specific reaction mechanism has not been identified.
- The distribution of chromium and Cr^{+6} concentrations for Dose 1, 2, 3, and 4 leachates is strongly correlated to pH. Specifically, Cr^{+6} concentrations increase with increasing pH for values greater than 8.3 (**Table 10**). This appears to be a threshold pH, above which chromium and Cr^{+6} concentrations in leachates increase with increasing pH. This threshold pH is consistent with the sorption and desorption of Cr^{+6} on HFO.
- With the exception of a few samples, the pH of Dose 1, 2, 3, and 4 leachates generally decreased to 8.0 or below, well below the initial Dose 1, 2, and 3 pH values of 8.5 and greater. It is likely that the pH of in-situ soils would approach the pH value of recharge water over time, following the onset of recharge operations. If so, this may release more chromium into solution, but there may be additional buffering reactions that may limit the pH increases.
- Based on the data provided in **Table 910** and given the presence of Cr^{+6} in leachate with higher pH values, it is recommended that the pH value for recycled water be maintained at or below 8.0. To maintain a sufficiently high Langelier Index at lower pH values prior to infiltration or injection, purified water will need to be conditioned to maintain higher hardness and lower alkalinity concentrations.
- PHREEQC SI calculations for the five groundwater samples collected from the Morgan Park monitoring wells support the dominance of Cr^{+3} species, particularly $Cr(OH)_3$(A), indicating that Cr^{+6} will not form. The SI calculations also show that that these samples have slightly elevated partial CO_2 (g) pressures of $10^{-2.4}$ atmospheres at depth suggesting possible biological activity. The overall effect of this buffering on metal mobility is difficult to assess. The groundwaters and dose samples tend to have pH values around

8, and that pH region is only slightly buffered by the carbonate system. The buffering might have a slight effect in slowing any increases in pH and so it could slow increases in Cr^{+6} concentration, but it is difficult to predict ion a quantitative basis.

- For any future dissolution studies, it is recommended that mineral studies of the solid samples be conducted.

9 References

Appelo, C. A. J., Van der Weiden, M. J. J., Tournassat, C., Charlet, L., 2002, Surface Complexation of Ferrous Iron and Carbonate on Ferrihydrite and the Mobilization of Arsenic: Environmental Science & Technology, v.36, n.14, pp. 3096–3103.

Appelo, C.A.J. and Postma, D., 1999, A Consistent Model for Surface Complexation on Birnessite (δ-MnO_2) and Its Application to a Column Experiment: Geochimica et Cosmochimica Acta, v.63, n.19/20, pp. 3039-3048.

Appelo, C.A.J. and Postma, D., 2005, Geochemistry, Groundwater and Pollution, 2nd Edition, A.A. Balkema Publishers, Leiden (Netherlands), 649 p.

Cole, J.J., Caracao, N.F., King, G.W., and Kranz, T.K., 1994, Carbon dioxide supersaturation in the surface waters of lakes. Science. Vol. 265, pp. 1568-1570. HDR, Inc., 2017, Technical Memorandum: Conditioning Considerations for RO Permeate, Santa Clara Valley Water District – Purified Water Program, April 12.

Hem, J.D., 1989, Study and Interpretation of the Chemical Characteristics of Natural Water: U.S Geological Survey Water-Supply Paper 2254, 272 p. https://clu-in.org/conf/tio/r10hardrock3_030513/Ch7Smith_SEG1999.pdf

Kinniburgh, D.G. and Cooper, D.M., 2011, PhreePlot: Creating Graphical Output with PHREEQC: http://www.phreeplot.org.

Langmuir, D, 1997, Aqueous Environmental Geochemistry: Prentice Hall, Upper Saddle River NJ, 600 p.

Langmuir, D., Mahoney, J., and Rowson, J., 2006. Solubility products of amorphous ferric arsenate and crystalline scorodite ($FeAsO_4.2H_2O$) and their application to arsenic behavior in buried mine tailings: Geochimica et Cosmochimica Acta., vol. 70, p. 2942-2956.

Little, E.E., B.M. Greenberg, and A.J. DeLonay, 1998, Environmental Toxicology and Risk Assessment: Seventh Volume, ASTM ISBN: 0-8031-2479-1, ISSN: 1071-720X, April.

Mahoney Geochemical, Introduction to Geochemical Modeling Tools: Equilibrium and Transport, 3 p.

Mahoney, J., 2013a, Surface Complexation – Tech Memo 8: Mahoney Geochemical Introduction to Geochemical Modeling Tools: Equilibrium and Transport, 6 p.

Mahoney, J., 2013b, Hydroxylamine – Hydrochloride (HH) Extraction for Ferric Hydroxide TM-7.

Mahoney, J., 2015, Using PhreePlot to Calibrate Mining Related Geochemical Models: A User's Perspective: 10th International Conference on Acid Rock Drainage & IMWA Annual Conference, April 21-24, 2015, 144 p. (abstract), 11 p. (paper).

Mahoney, J., 2017, Geochemical Modeling of Leaching of Alluvial Sediments in the Santa Clara Area – UPDATED: Technical Memorandum to Todd Groundwater, 14 p.

Mahoney, J.J., Cadle, S.A, and Jakubowski, R.T., 2009. Uranyl adsorption onto hydrous ferric oxide – a re-evaluation for the diffuse layer model database. Environmental Science and Technology. v. 43, no. 24, p. 9260-9266. DOI 10.1021/es901586w.

Mahoney, J., Langmuir, D., Gosselin, N., and Rowson, J., 2005, Arsenic readily released to pore waters from buried mill tailings. Applied Geochemistry, Vol. 20 (5), p. 947 –959. Merkel, B.J., Planer-Frierich, B. and (Nordstrom, D.K, editor)., 2008, Groundwater Geochemistry A Practical Guide to Modeling of Natural and Contaminated Aquatic Systems. Springer, Berlin, 230 p.

Mohr, T., Santa Clara Valley Water District (District), 2017, Personal Communication, August 31.

Newhouse, M.W., Hanson, R.T., Wentworth, C.W., Everett, R.R., Williams, C.F., Tinsley, J.C., Noce, T.E., and Carkin, B.A., 2004, Geologic, Water-Chemistry and Hydrologic Data from Multiple-Well Monitoring Sites and Selected Water-Supply Wells in the Santa Clara Valley, California, 1999-2003: U.S. Geological Survey (USGS) Scientific Investigations Report 2004-5250, USGS, Reston, VA, 134 p.

Orange County Water District (OCWD), 2017, Draft Miraloma Basin Monitoring 2012 – 2016, Data Summary Final Report, prepared by Grisel Rodriguez, Draft Dated April 7, 2017.

Parkhurst, D.L., and Appelo, C.A.J., 2013, *Description of Input and Examples for PHREEQC version 3 — A Computer Program for Speciation, Batch-reaction, One-dimensional Transport, and Inverse Geochemical Calculations*: U.S. Geological Survey Techniques and Methods, Book 6, Chap. A43, 497 p., available only at: http://pubs.usgs.gov/tm/06/a43.

RMC and CDM Smith, 2014, South Bay Water Recycling Strategic and Master Planning, prepared for Santa Clara Valley Water District and City of San Jose, December.

Santa Clara Valley Water District (District), Hiren Majumdar, Manual Gomez, Timothy McGarry, and Douglas Haines, 1977, District Groundwater Recharge Facilities, December.

Santa Clara Valley Water District (District), 2012, 2012 Water Supply and Infrastructure Master Plan, October.

Santa Clara Valley Water District (District), 2016, 2016 Groundwater Management Plan Santa Clara and Llagas Subbasins, November.

Santa Clara Valley Water District (District), 2017, Personal Communication between Vanessa De La Piedra and Jerry Sparkman, Email with questions and responses regarding historical recharge operational observations at the existing Ford Pond, August 3.

Stumm, W., 1992, Chemistry of the Solid-Water Interface: Processes at the Mineral-Water and Particle-Water Interface in Natural Systems: Wiley Interscience, New York, NY: ISBN: 978-0-471-57672-3, 448 p.

Takeno, N., 2005, Atlas of Eh-pH Diagrams: Geological Survey of Japan OFR 419, 419 p. http://www.eosremediation.com/download/Chemistry/Chemical%20Properties/Eh_pH_Diagrams.pdf

Figures

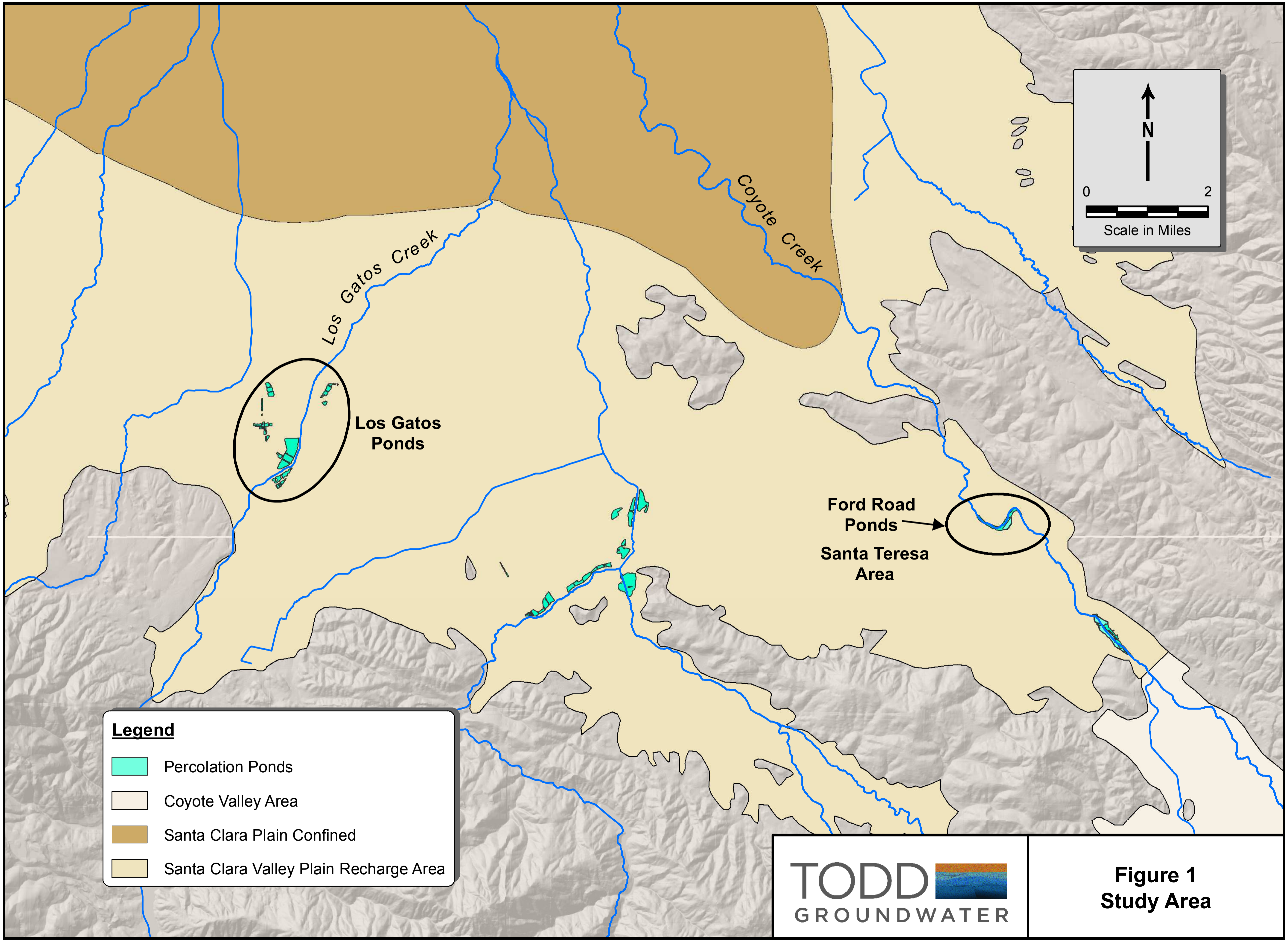


Figure 1
Study Area

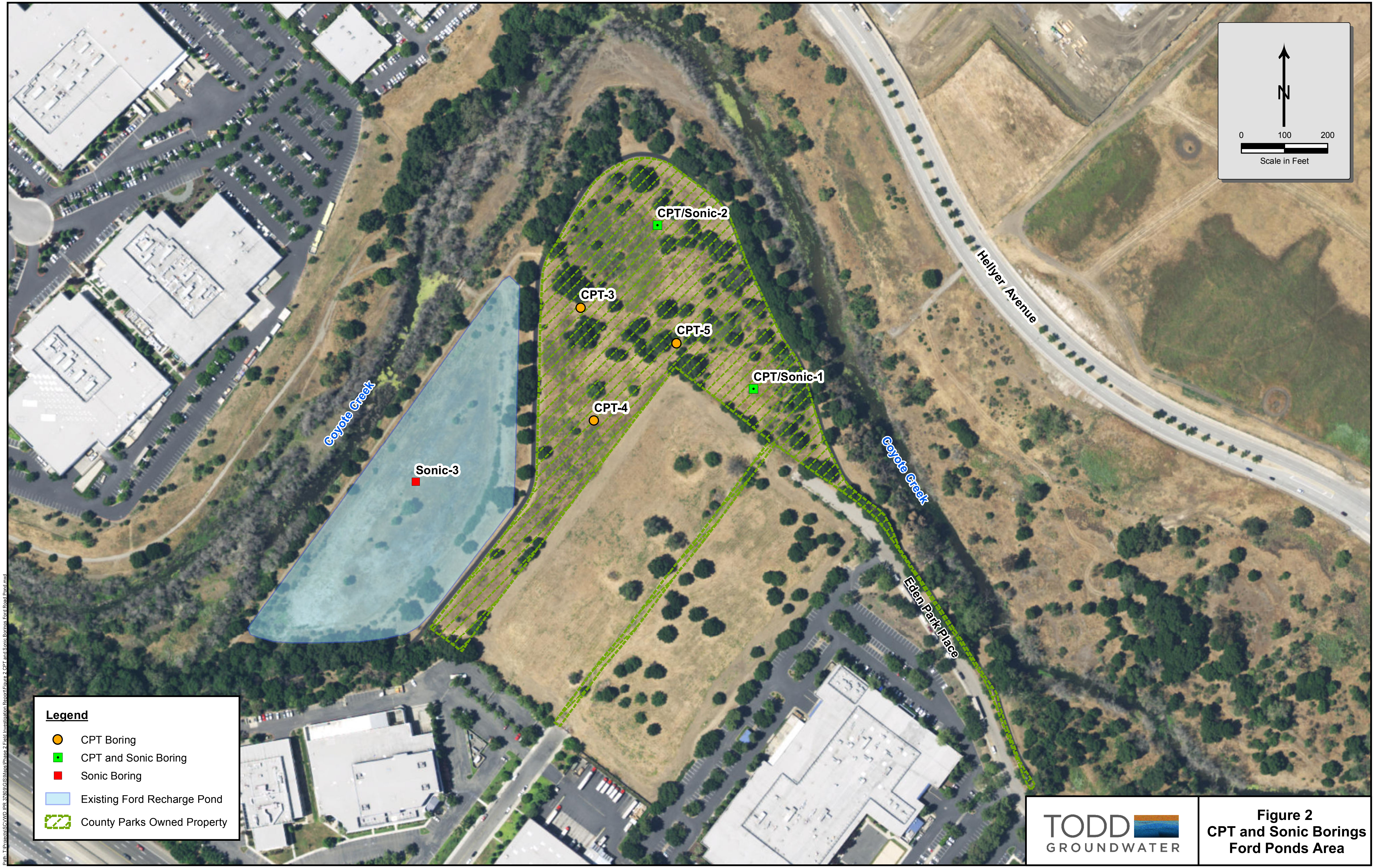


Figure 2
CPT and Sonic Borings
Ford Ponds Area

Path: T:\Projects\SCVWD IPR 37809\GIS\Maps\Phase 2 Field Investigation Report\Figure 2 CPT and Sonic Borings Ford Road Pond.mxd

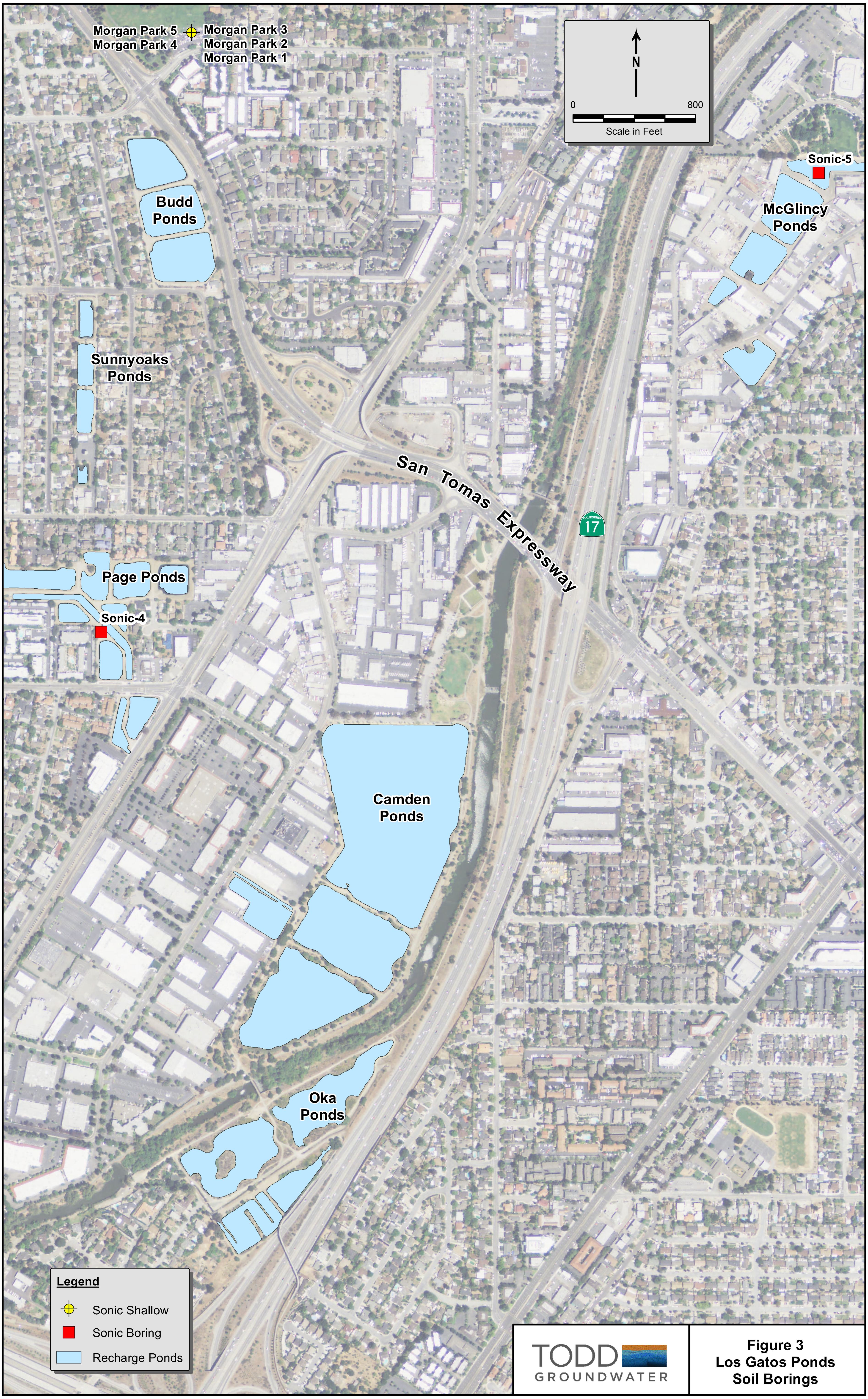
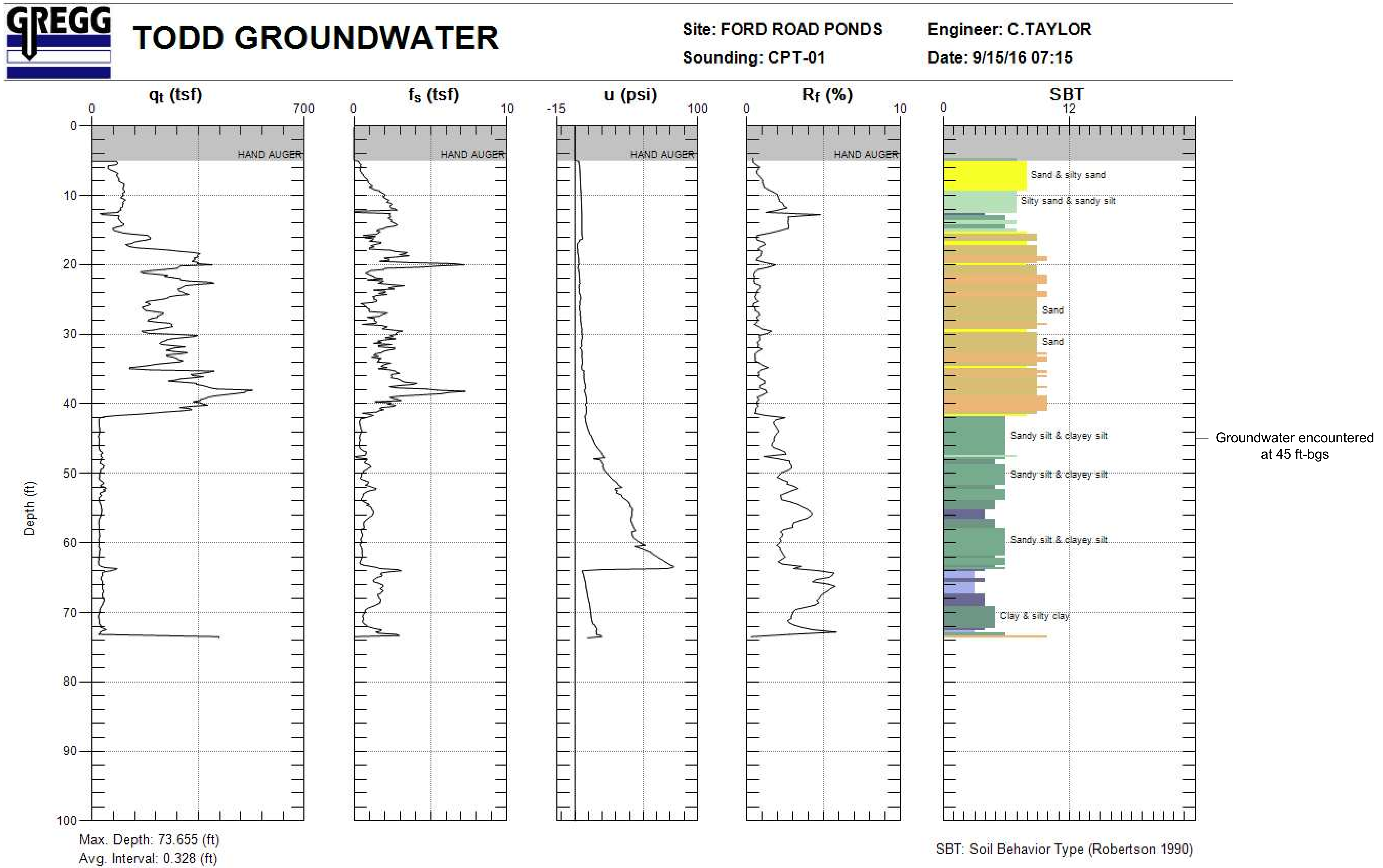


Figure 3
Los Gatos Ponds
Soil Borings



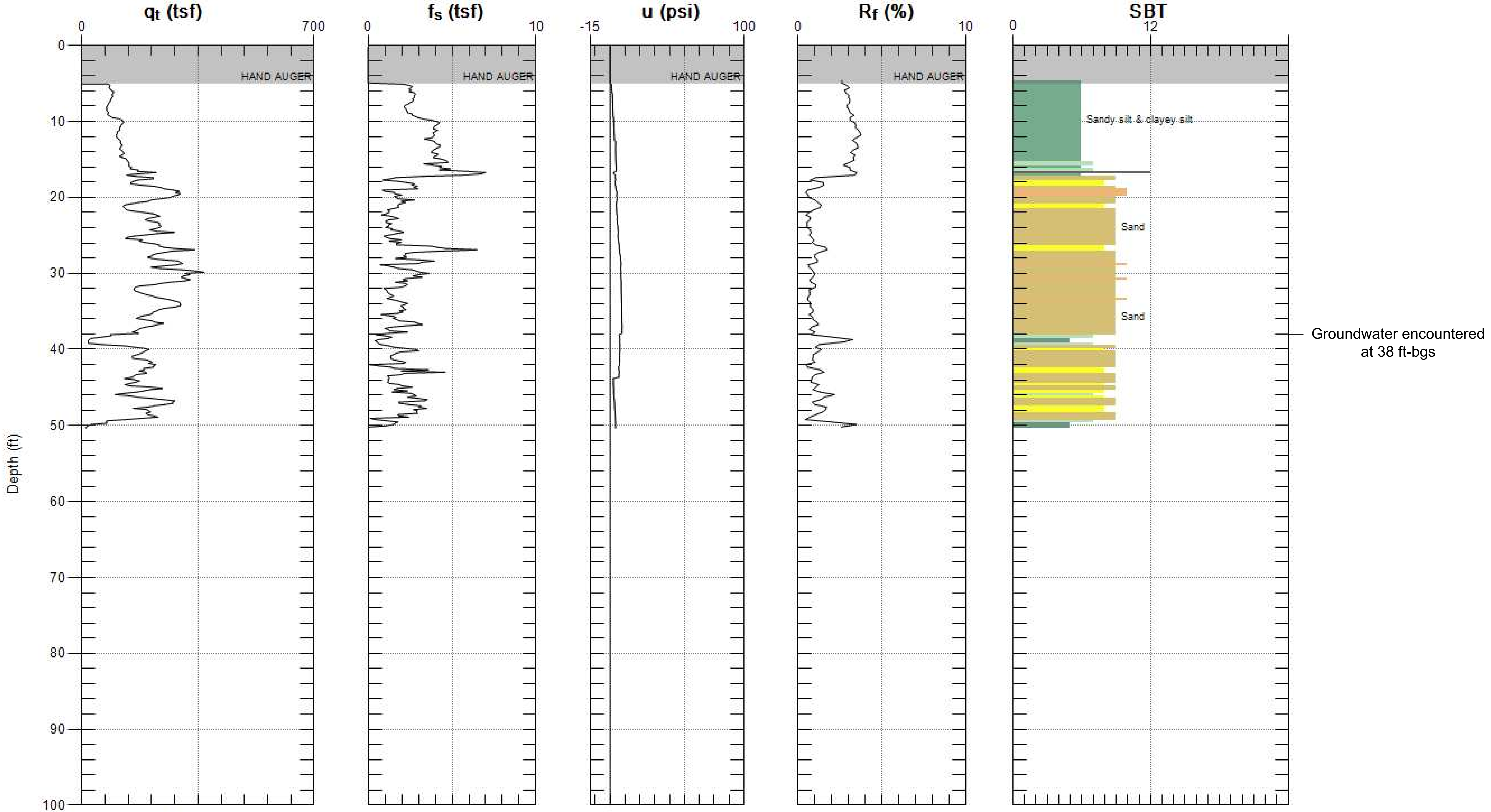
TODD GROUNDWATER

Figure 4
Ford Pond Area
CPT-1

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-02

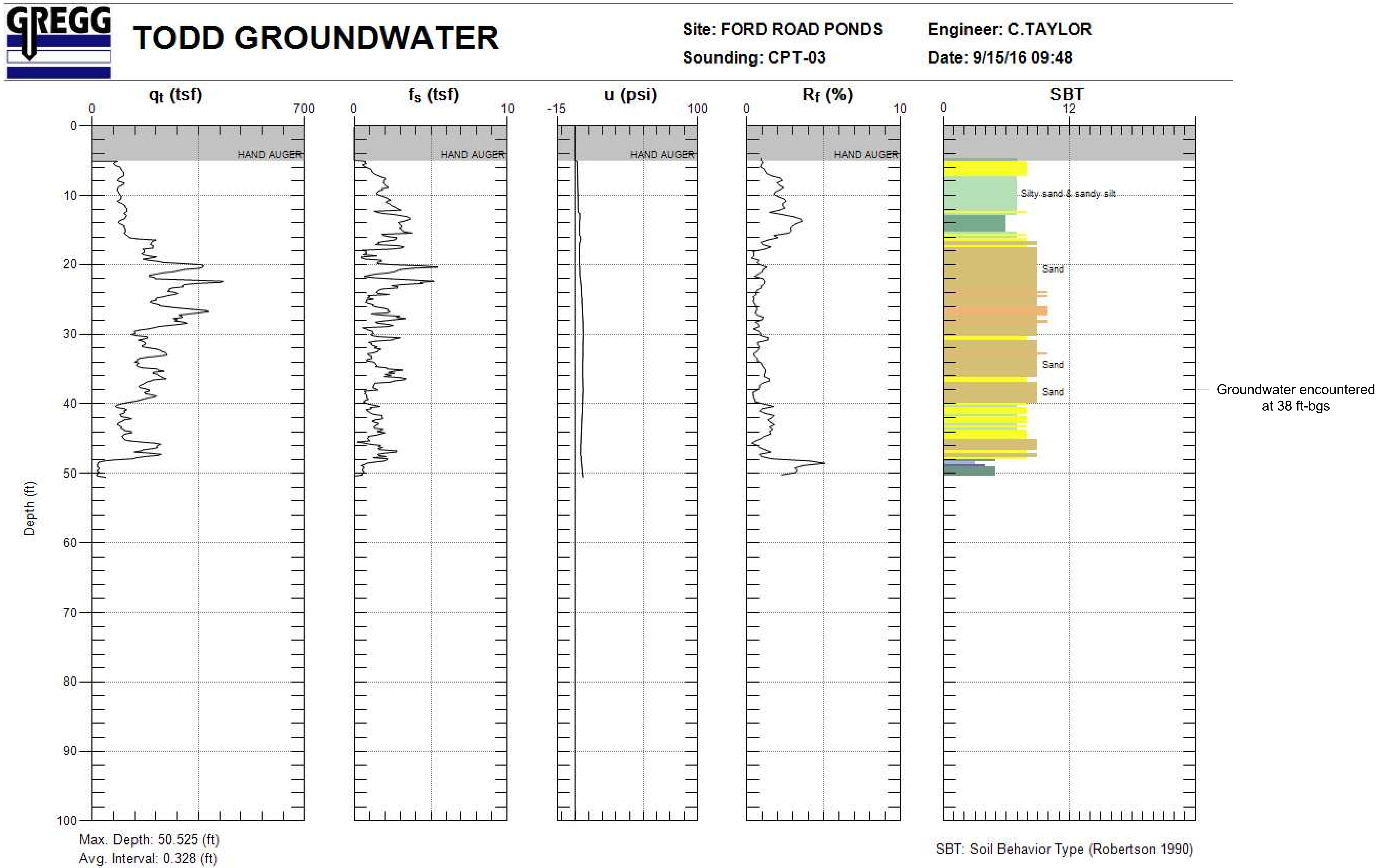
Engineer: C.TAYLOR
Date: 9/15/16 08:35



Max. Depth: 50.361 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Figure 5
Ford Pond Area
CPT-2



TODD GROUNDWATER

Site: FORD ROAD PONDS

Sounding: CPT-03

Engineer: C.TAYLOR

Date: 9/15/16 09:48

Groundwater encountered at 38 ft-bgs

Max. Depth: 50.525 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

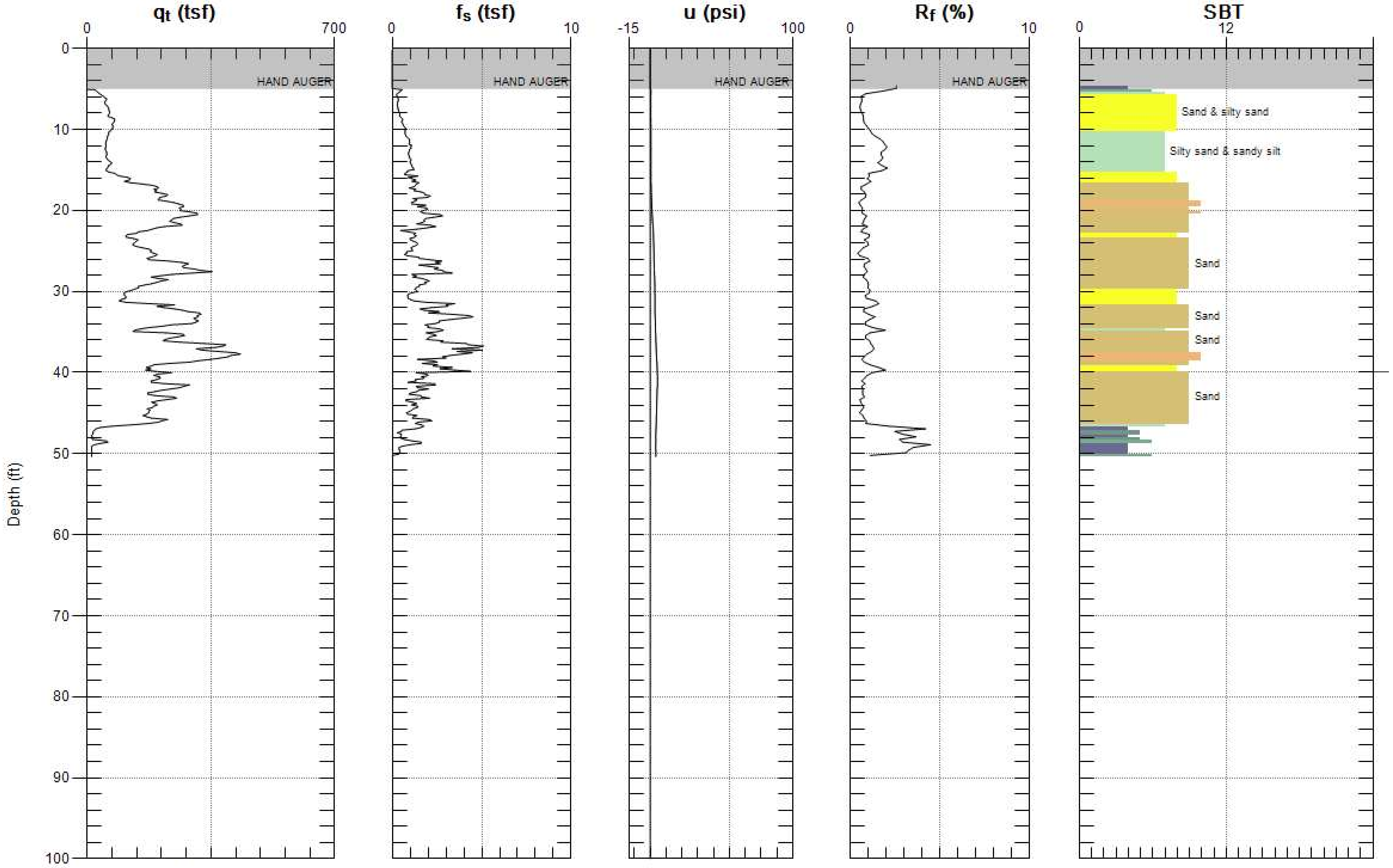
TODD GROUNDWATER

Figure 6
Ford Pond Area
CPT-3

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-04

Engineer: C.TAYLOR
Date: 9/15/16 12:06



Groundwater encountered at 40 ft-bgs

Max. Depth: 50.361 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

TODD GROUNDWATER

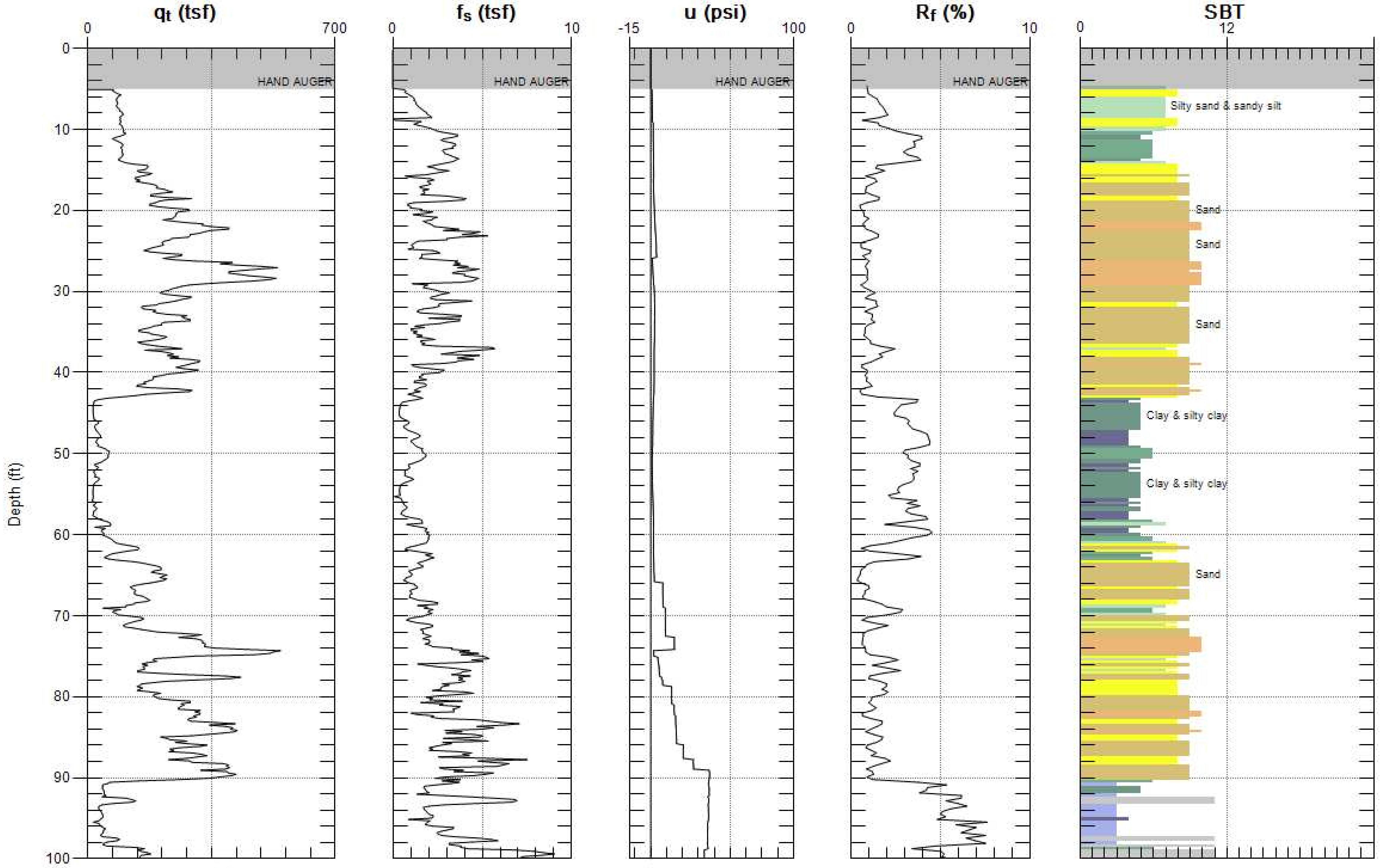
Figure 7
Ford Pond Area
CPT-4

GREGG

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-05

Engineer: C.TAYLOR
Date: 9/15/16 01:13

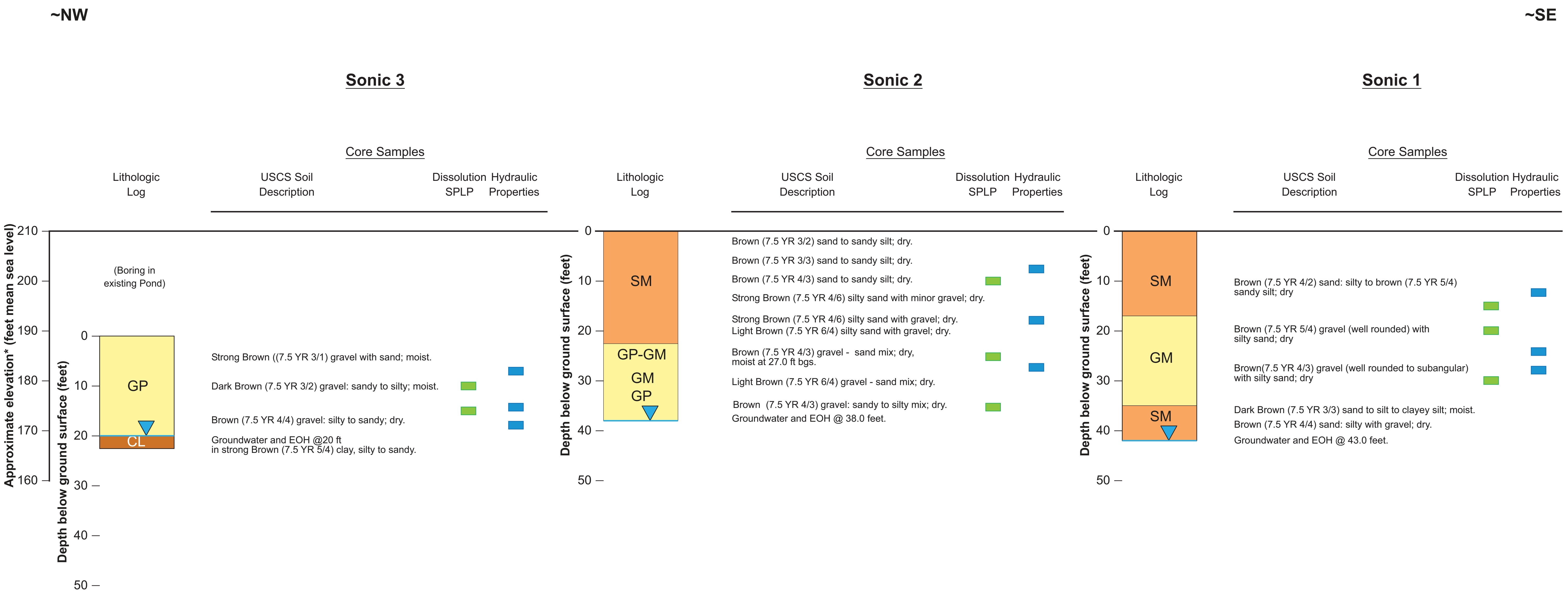


Max. Depth: 100.558 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

TODD GROUNDWATER

Figure 8
Ford Pond Area
CPT-5



Sonic 3:

Strong Brown ((7.5 YR 3/1) gravel with sand; moist.

Dark Brown (7.5 YR 3/2) gravel: sandy to silty; moist.

Brown (7.5 YR 4/4) gravel: silty to sandy; dry.

Groundwater and EOH @20 ft
in strong Brown (7.5 YR 5/4) clay, silty to sandy.

Sonic 2:

Brown (7.5 YR 3/2) sand to sandy silt; dry.

Brown (7.5 YR 3/3) sand to sandy silt; dry.

Brown (7.5 YR 4/3) sand to sandy silt; dry.

Strong Brown (7.5 YR 4/6) silty sand with minor gravel; dry.

Strong Brown (7.5 YR 4/6) silty sand with gravel; dry.
Light Brown (7.5 YR 6/4) silty sand with gravel; dry.

Brown (7.5 YR 4/3) gravel - sand mix; dry,
moist at 27.0 ft bgs.

Light Brown (7.5 YR 6/4) gravel - sand mix; dry.

Brown (7.5 YR 4/3) gravel: sandy to silty mix; dry.
Groundwater and EOH @ 38.0 feet.

Sonic 1:

Brown (7.5 YR 4/2) sand: silty to brown (7.5 YR 5/4)
sandy silt; dry

Brown (7.5 YR 5/4) gravel (well rounded) with
silty sand; dry

Brown(7.5 YR 4/3) gravel (well rounded to subangular)
with silty sand; dry

Dark Brown (7.5 YR 3/3) sand to silt to clayey silt; moist.

Brown (7.5 YR 4/4) sand: silty with gravel; dry.

Groundwater and EOH @ 43.0 feet.

Notes: No horizontal scale
EOH - End of hole
USCS - Unified Soil Classification System
Soil colors by Muncell Color Chart
SPLP - Synthetic precipitation leaching potential
* Approximate elevation measured with
ground positioning system meter

LEGEND

🟨	Predominantly Gravel
🟧	Sand
🟫	Predominantly Silt and Clay

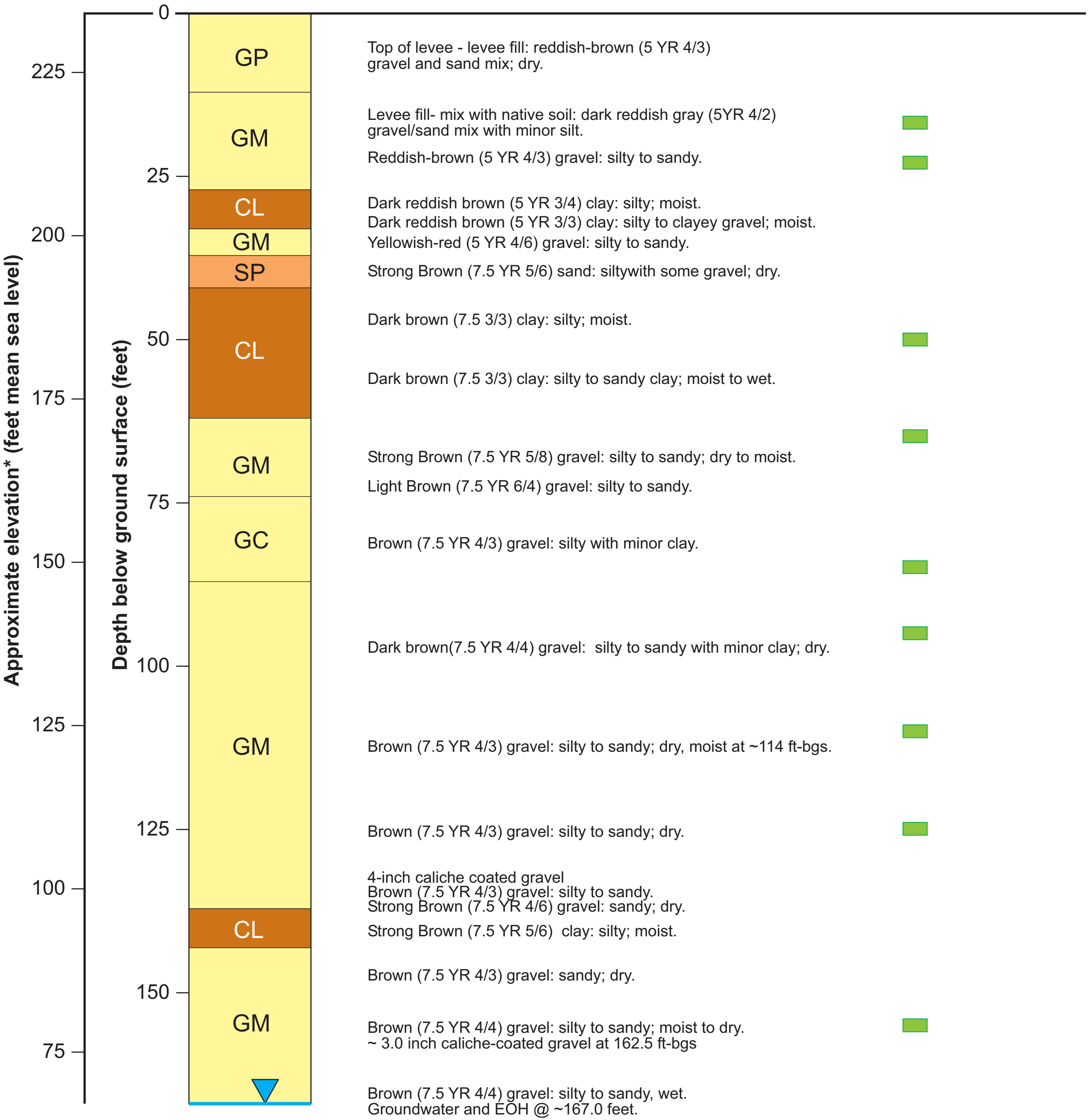
TODD GROUNDWATER

Figure 9
Ford Pond Area Sonic 1, 2, and 3 Logs

Sonic 4

Core Samples

Lithologic Log	USCS Soil Description	Dissolution SPLP



0
25
50
75
100
125
150
225
200
175
150
125
100
75
GP
GM
CL
GM
SP
CL
GM
GC
GM
CL
GM
Approximate elevation* (feet mean sea level)
Depth below ground surface (feet)

Top of levee - levee fill: reddish-brown (5 YR 4/3) gravel and sand mix; dry.

Levee fill- mix with native soil: dark reddish gray (5YR 4/2) gravel/sand mix with minor silt.

Reddish-brown (5 YR 4/3) gravel: silty to sandy.

Dark reddish brown (5 YR 3/4) clay: silty; moist.

Dark reddish brown (5 YR 3/3) clay: silty to clayey gravel; moist.

Yellowish-red (5 YR 4/6) gravel: silty to sandy.

Strong Brown (7.5 YR 5/6) sand: siltywith some gravel; dry.

Dark brown (7.5 3/3) clay: silty; moist.

Dark brown (7.5 3/3) clay: silty to sandy clay; moist to wet.

Strong Brown (7.5 YR 5/8) gravel: silty to sandy; dry to moist.

Light Brown (7.5 YR 6/4) gravel: silty to sandy.

Brown (7.5 YR 4/3) gravel: silty with minor clay.

Dark brown(7.5 YR 4/4) gravel: silty to sandy with minor clay; dry.

Brown (7.5 YR 4/3) gravel: silty to sandy; dry, moist at ~114 ft-bgs.

Brown (7.5 YR 4/3) gravel: silty to sandy; dry.

4-inch caliche coated gravel
Brown (7.5 YR 4/3) gravel: silty to sandy.
Strong Brown (7.5 YR 4/6) gravel: sandy; dry.

Strong Brown (7.5 YR 5/6) clay: silty; moist.

Brown (7.5 YR 4/3) gravel: sandy; dry.

Brown (7.5 YR 4/4) gravel: silty to sandy; moist to dry.
~ 3.0 inch caliche-coated gravel at 162.5 ft-bgs

Brown (7.5 YR 4/4) gravel: silty to sandy, wet.
Groundwater and EOH @ ~167.0 feet.

Notes: No horizontal scale
EOH - End of hole
USCS - Unified Soil Classification System
Soil colors by Muncell Color Chart
SPLP - Synthetic precipitation leaching potential
* Approximate elevation measured with ground positioning system meter

LEGEND

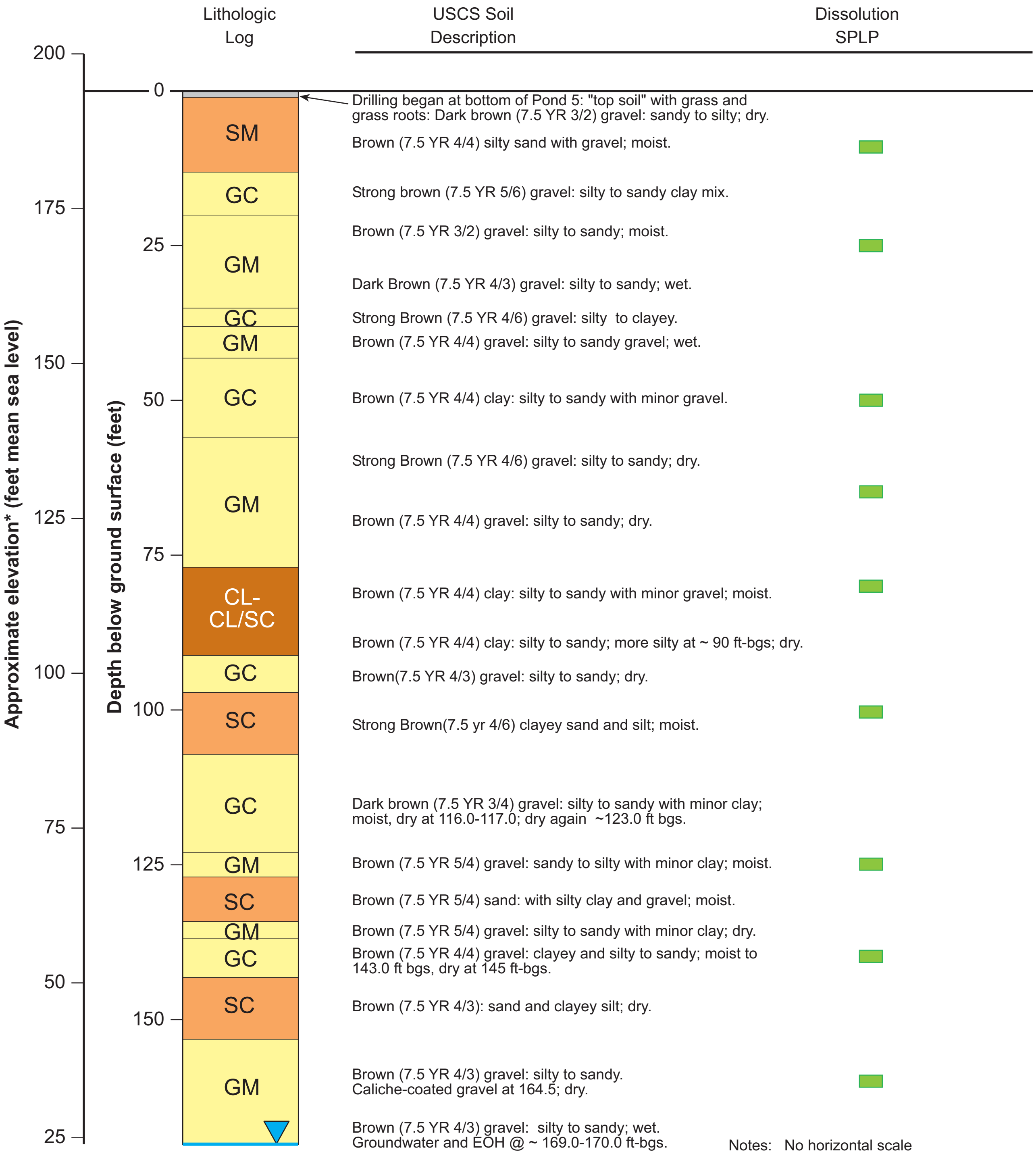
- 🟨 Predominantly Gravel
- 🟧 Sand
- 🟫 Predominantly Silt and Clay

TODD GROUNDWATER

Figure 10
Page Ponds
Sonic 4
Boring Log

Sonic 5

Core Samples



Drilling began at bottom of Pond 5: "top soil" with grass and grass roots: Dark brown (7.5 YR 3/2) gravel: sandy to silty; dry.

Brown (7.5 YR 4/4) silty sand with gravel; moist.

Strong brown (7.5 YR 5/6) gravel: silty to sandy clay mix.

Brown (7.5 YR 3/2) gravel: silty to sandy; moist.

Dark Brown (7.5 YR 4/3) gravel: silty to sandy; wet.

Strong Brown (7.5 YR 4/6) gravel: silty to clayey.

Brown (7.5 YR 4/4) gravel: silty to sandy gravel; wet.

Brown (7.5 YR 4/4) clay: silty to sandy with minor gravel.

Strong Brown (7.5 YR 4/6) gravel: silty to sandy; dry.

Brown (7.5 YR 4/4) gravel: silty to sandy; dry.

Brown (7.5 YR 4/4) clay: silty to sandy with minor gravel; moist.

Brown (7.5 YR 4/4) clay: silty to sandy; more silty at ~ 90 ft-bgs; dry.

Brown(7.5 YR 4/3) gravel: silty to sandy; dry.

Strong Brown(7.5 yr 4/6) clayey sand and silt; moist.

Dark brown (7.5 YR 3/4) gravel: silty to sandy with minor clay; moist, dry at 116.0-117.0; dry again ~123.0 ft bgs.

Brown (7.5 YR 5/4) gravel: sandy to silty with minor clay; moist.

Brown (7.5 YR 5/4) sand: with silty clay and gravel; moist.

Brown (7.5 YR 5/4) gravel: silty to sandy with minor clay; dry.

Brown (7.5 YR 4/4) gravel: clayey and silty to sandy; moist to 143.0 ft bgs, dry at 145 ft-bgs.

Brown (7.5 YR 4/3): sand and clayey silt; dry.

Brown (7.5 YR 4/3) gravel: silty to sandy. Caliche-coated gravel at 164.5; dry.

Brown (7.5 YR 4/3) gravel: silty to sandy; wet. Groundwater and EOH @ ~ 169.0-170.0 ft-bgs.

Notes:
No horizontal scale
EOH - End of hole
USCS - Unified Soil Classification System
Soil colors by Muncell Color Chart
SPLP - Synthetic precipitation leaching potential
* Approximate elevation measured with ground positioning system meter

LEGEND

🟨	Predominantly Gravel
🟧	Sand
🟫	Predominantly Silt and Clay

TODD GROUNDWATER

Figure 11
McGlincy Ponds
Sonic 5
Boring Log

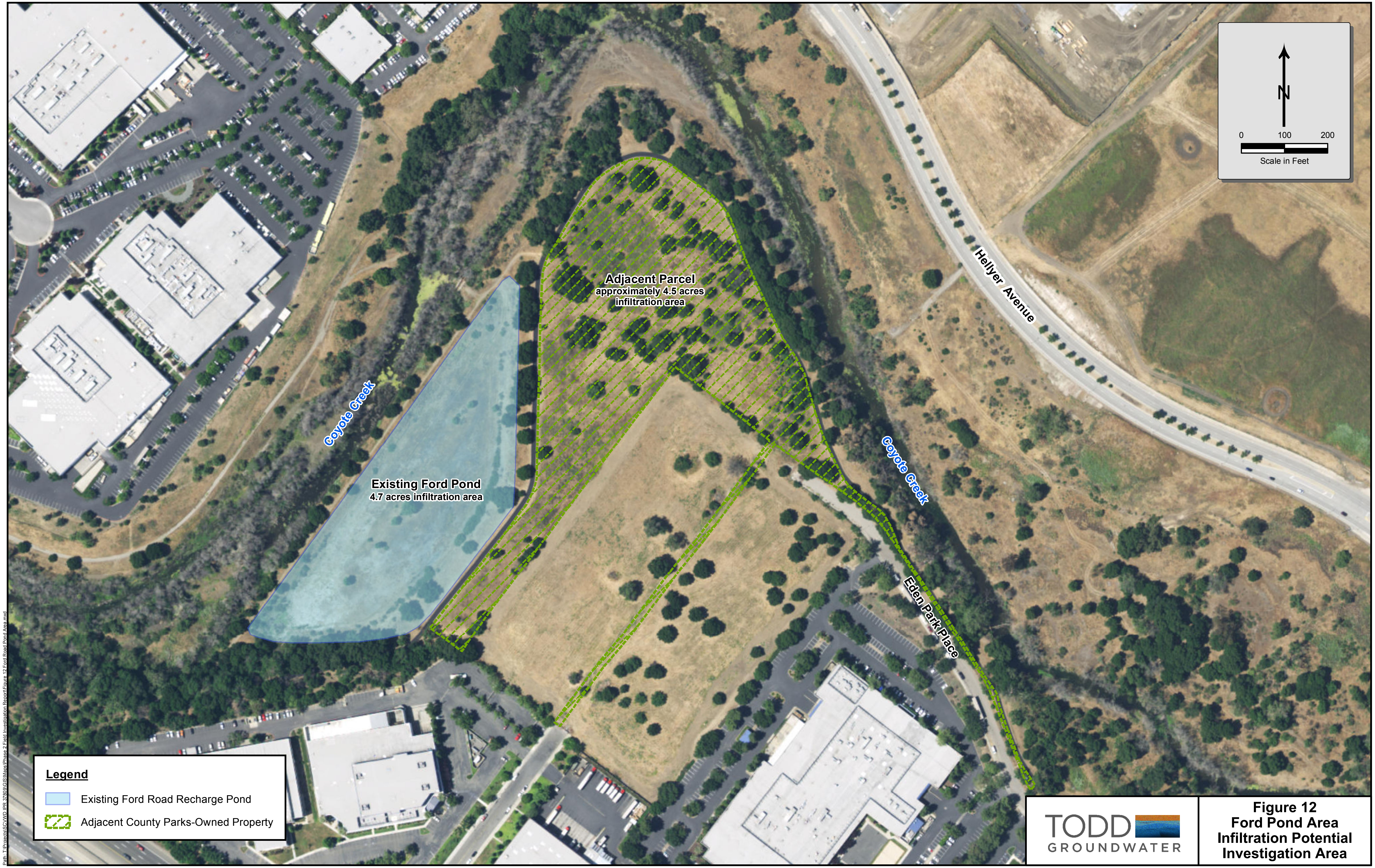
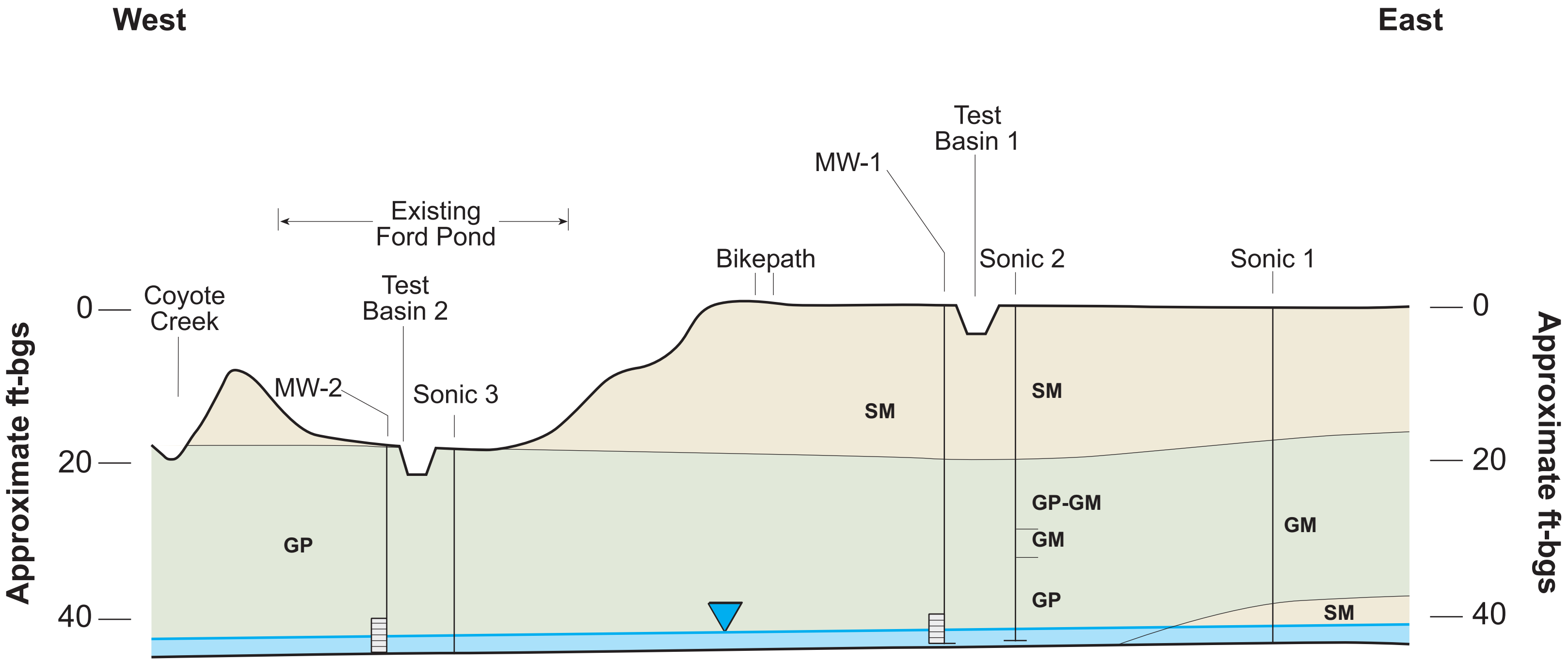


Figure 12
Ford Pond Area
Infiltration Potential
Investigation Area

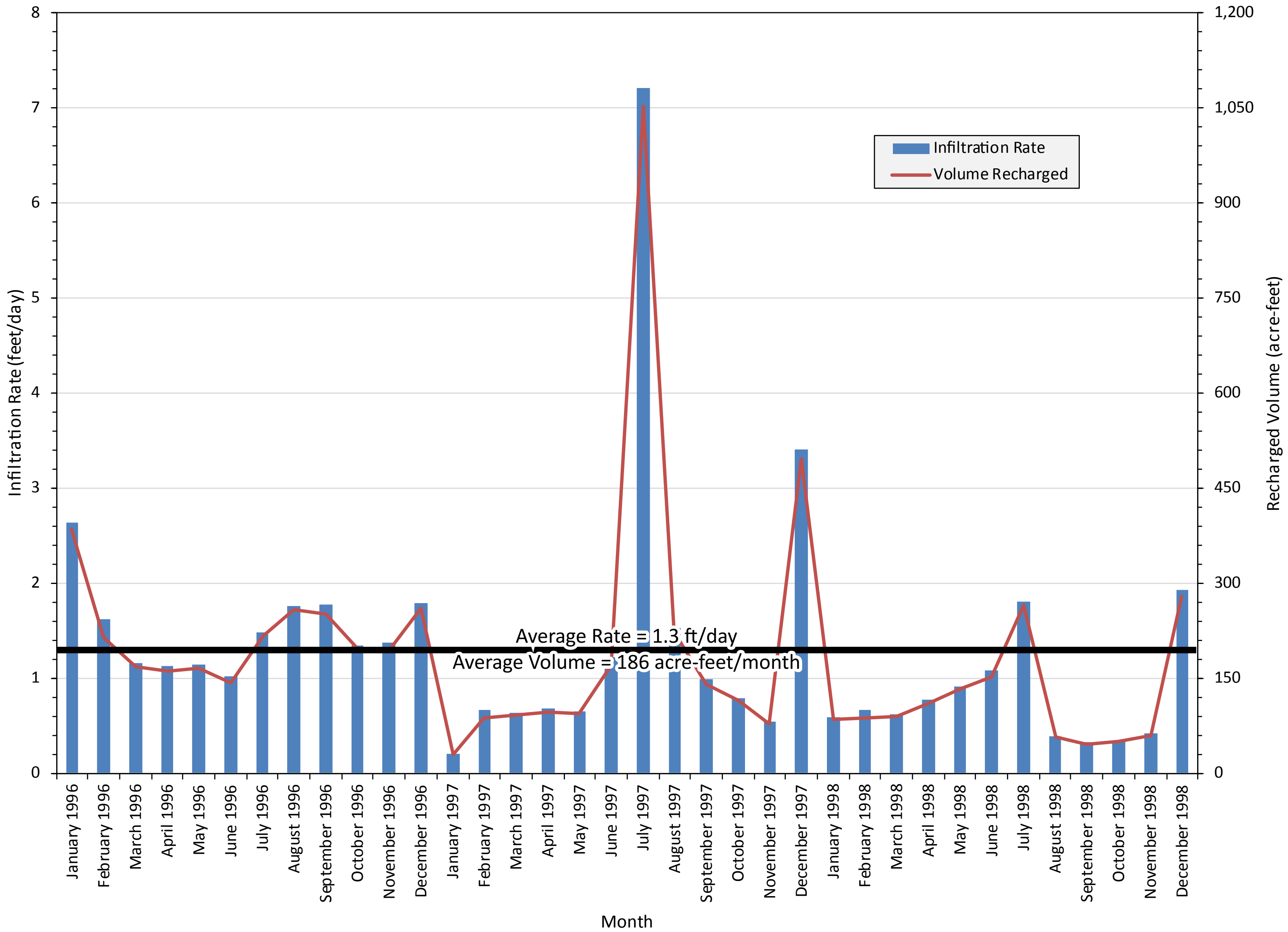
Path: T:\Projects\SCVWD IPR 37809\GIS\Maps\Phase 2 Field Investigation Report\Figure 12 Ford Road Pond Area.mxd



ft-bgs - feet below ground surface
SM - silty sand
GP - poorly graded gravel
GM - silty gravel

TODD
GROUNDWATER

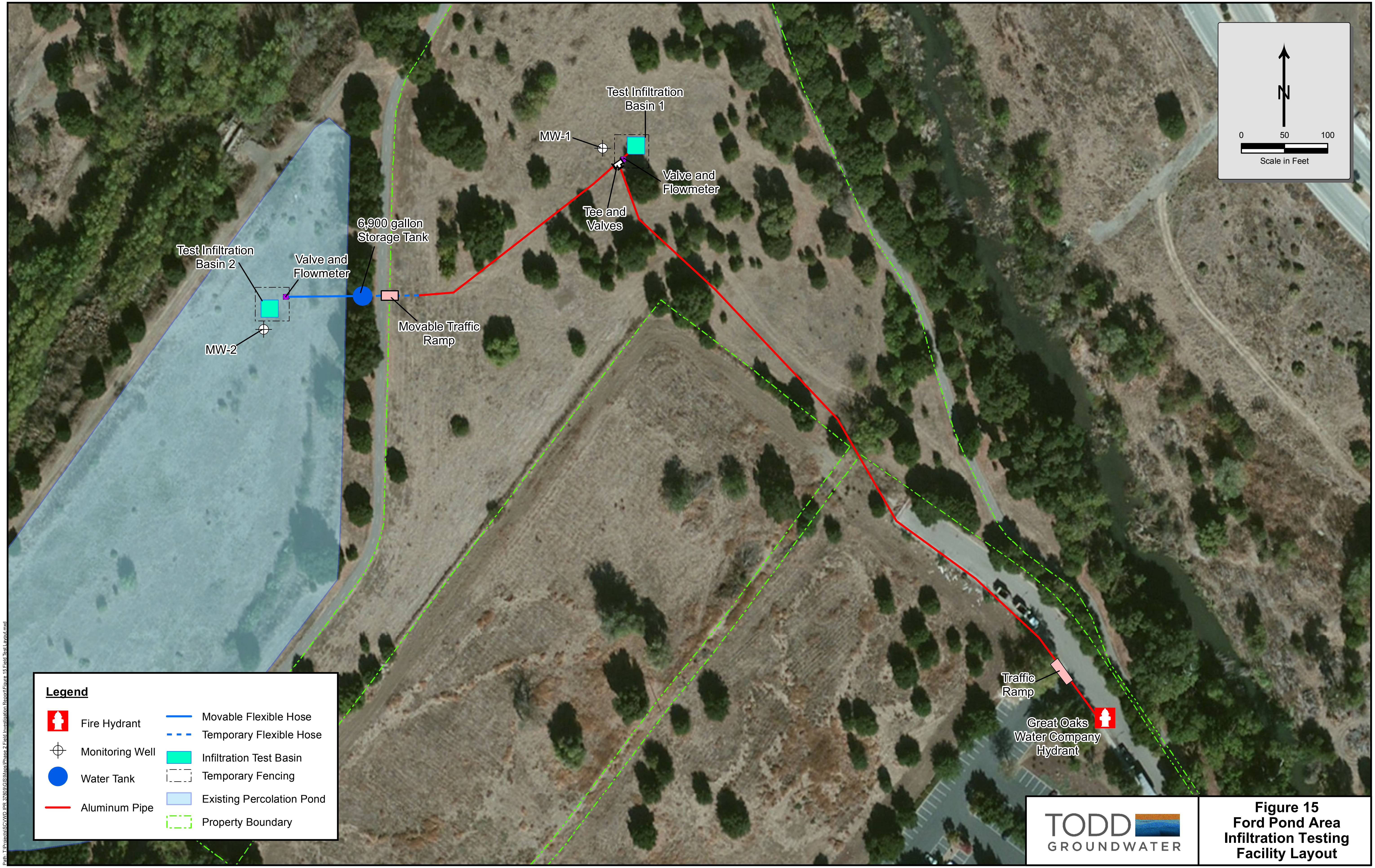
Figure 13
Generalized Ford Pond Area Cross Section



Note:
Data for August through November are based on combined volumes recharged in Ford Road Ponds and in-stream detention behind berms in Coyote Creek. Infiltration rates during these months are from combined pond and creek operations; volumes are estimates of recharge in Ford Pond only.

TODD GROUNDWATER

Figure 14
Historical Operation of Ford Pond

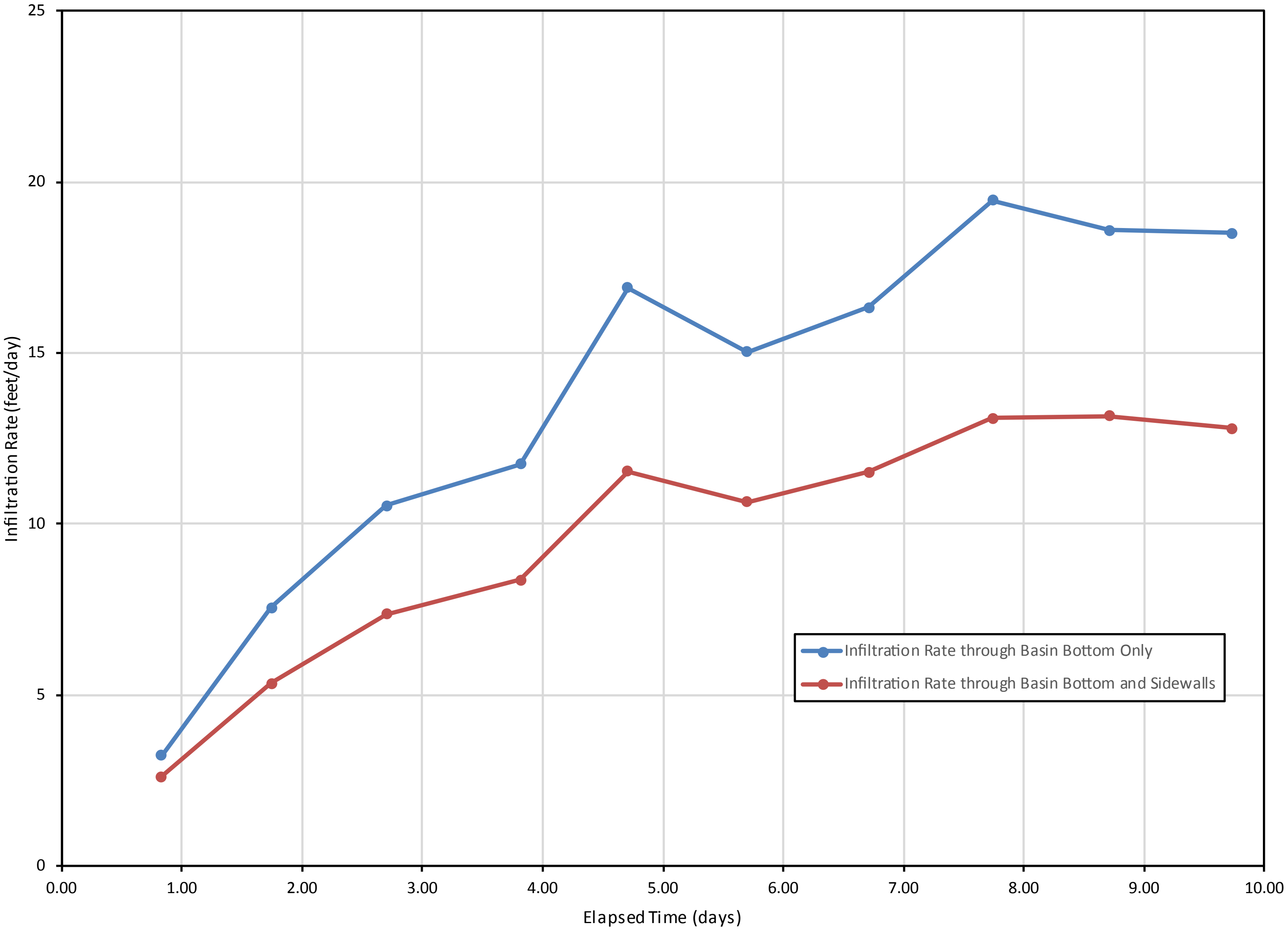


Legend

Fire Hydrant	Movable Flexible Hose
Monitoring Well	Temporary Flexible Hose
Water Tank	Infiltration Test Basin
Aluminum Pipe	Temporary Fencing
	Existing Percolation Pond
	Property Boundary

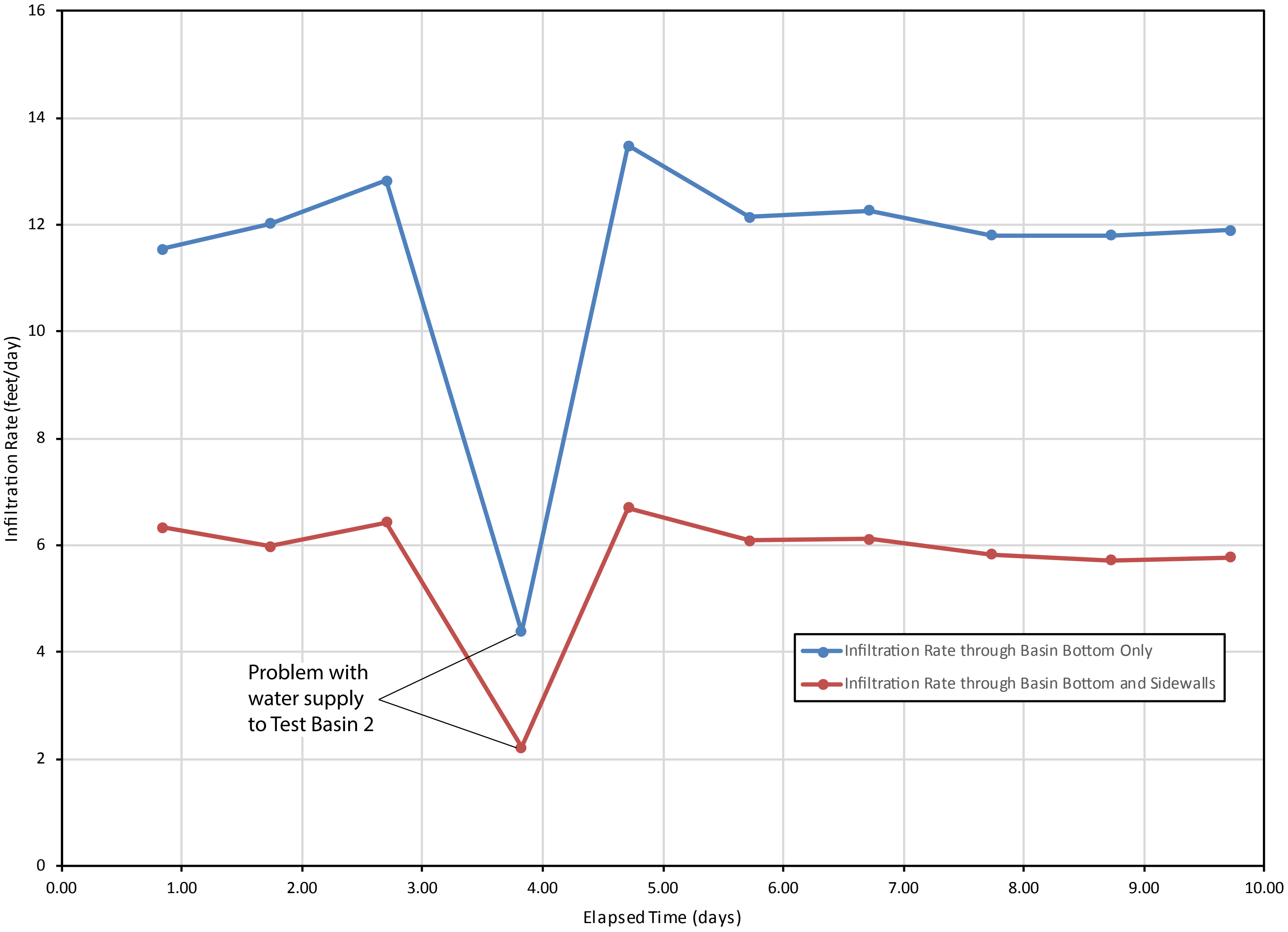
Figure 15
Ford Pond Area Infiltration Testing Facility Layout

Path: T:\Projects\SCVWD IPR 37809\GIS\Maps\Phase 2 Field Investigation Report\Figure 15 Field Test Layout.mxd



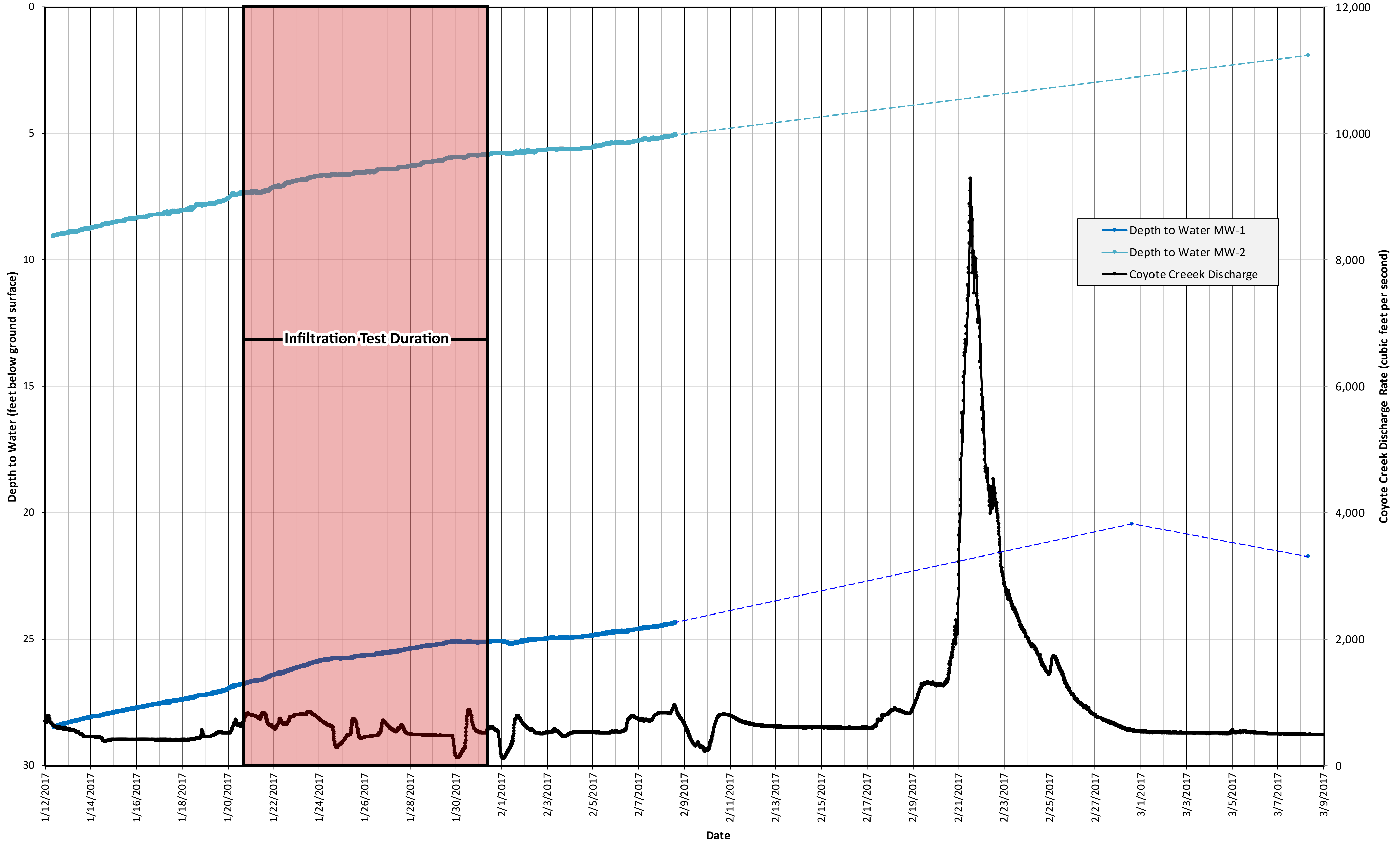
TODD GROUNDWATER

Figure 16
Infiltration Rate in Test Basin 1



TODD GROUNDWATER

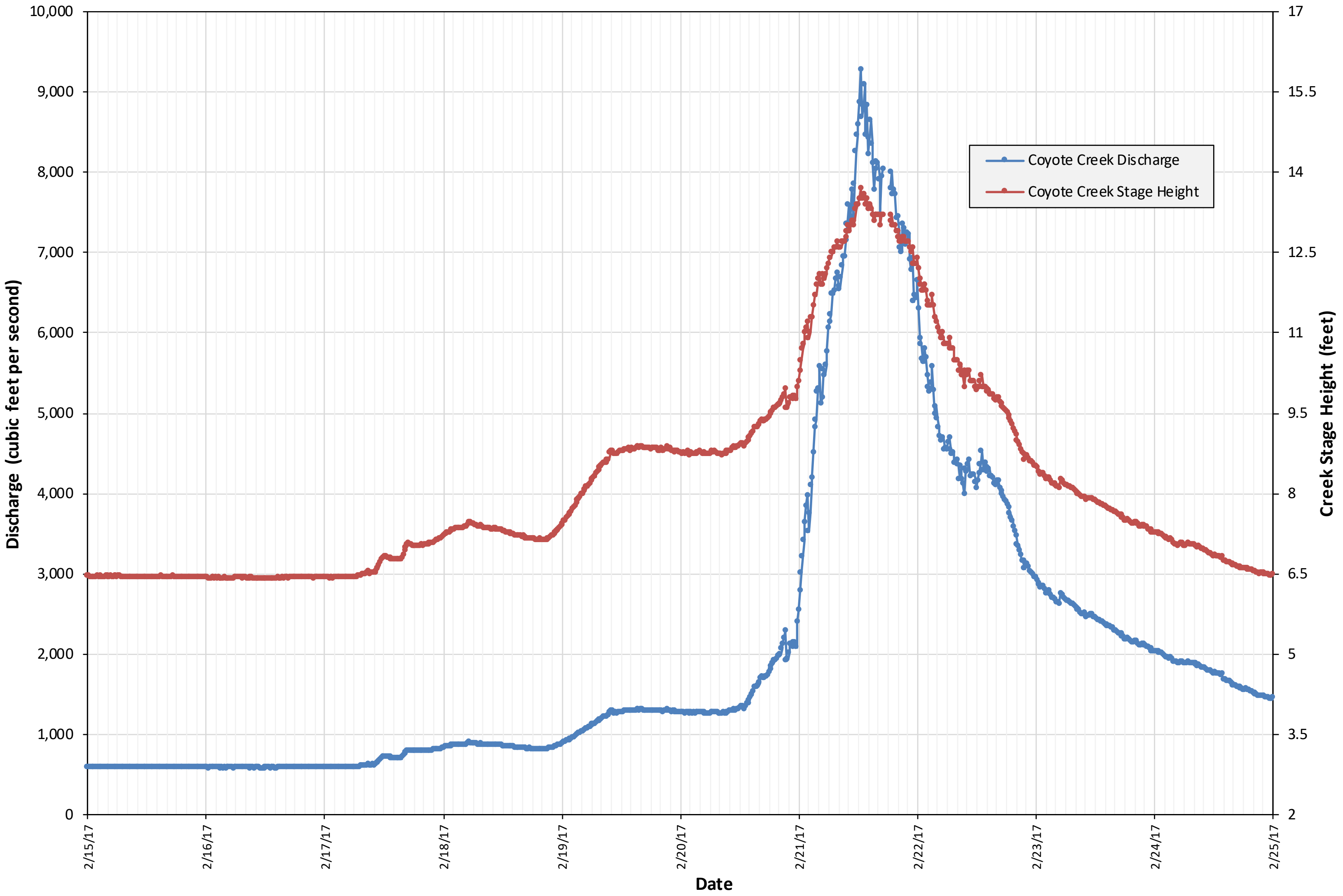
Figure 17
Infiltration Rate in Test Basin 2



Note:
Coyote Creek discharge as measured at the Edenvale gage 2 miles downstream from Ford Pond.

TODD GROUNDWATER

Figure 18
Grondwater Depth and Creek Discharge Near Test Basins



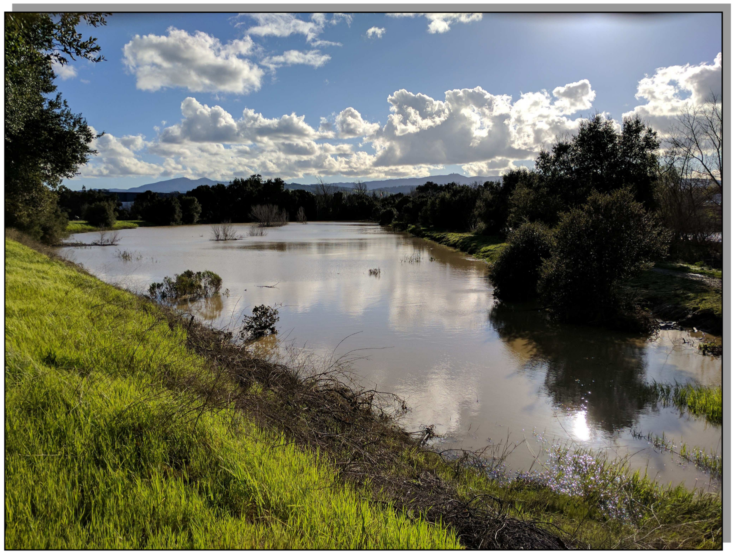
Note:

Coyote Creek discharge and stage as measured at the Edenvale gage 2 miles downstream from Ford Pond.

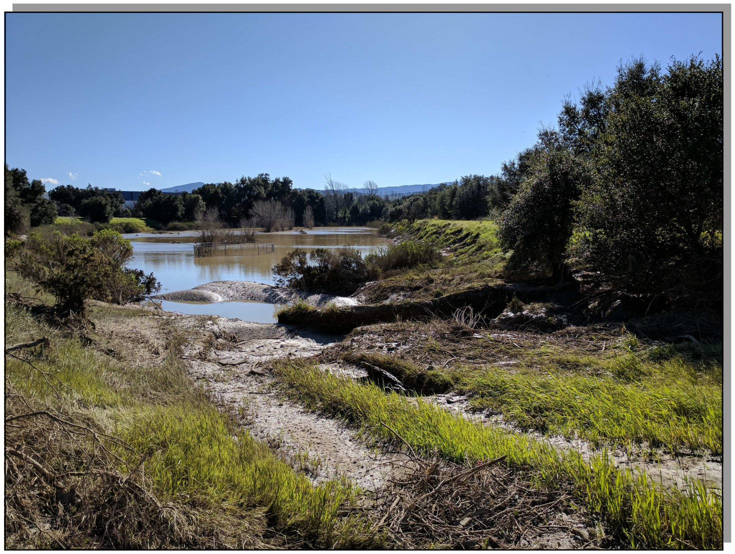
TODD GROUNDWATER

Figure 19

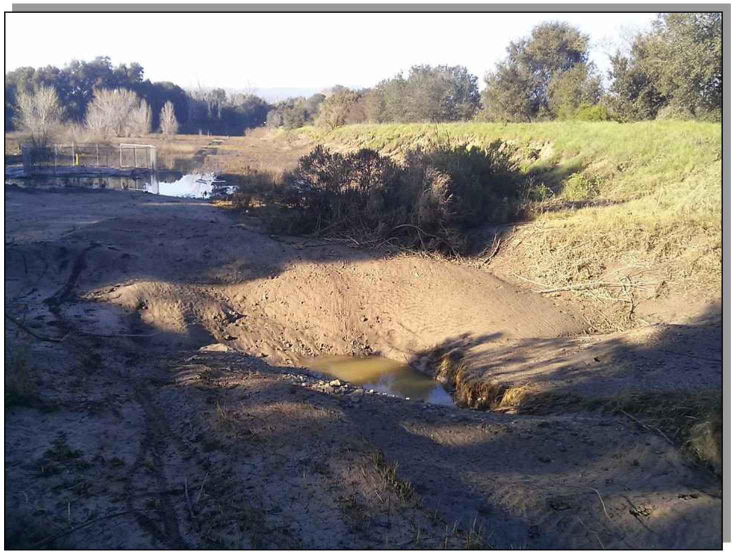
Discharge in Coyote Creek during Flood Event that filled Ford Pond



Ford Pond Flooded nearly full on February 22, 2017.



Ford Pond receded, approximately 8 feet remaining on February 28, 2017.



Ford Pond nearly empty March 8, 2017.

TODD GROUNDWATER

Figure 20
Photographs of Ford Pond Flooded from Coyote Creek

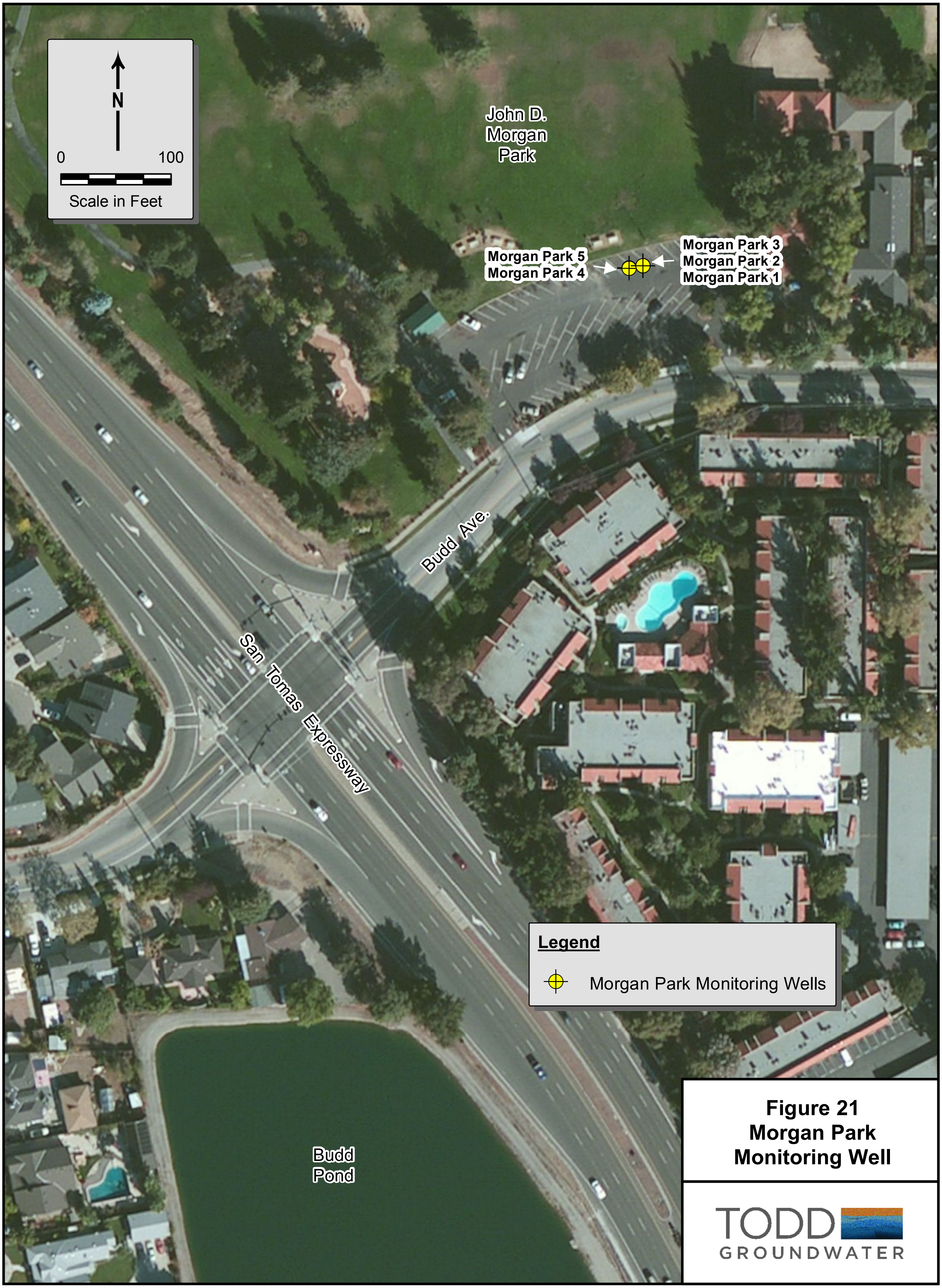
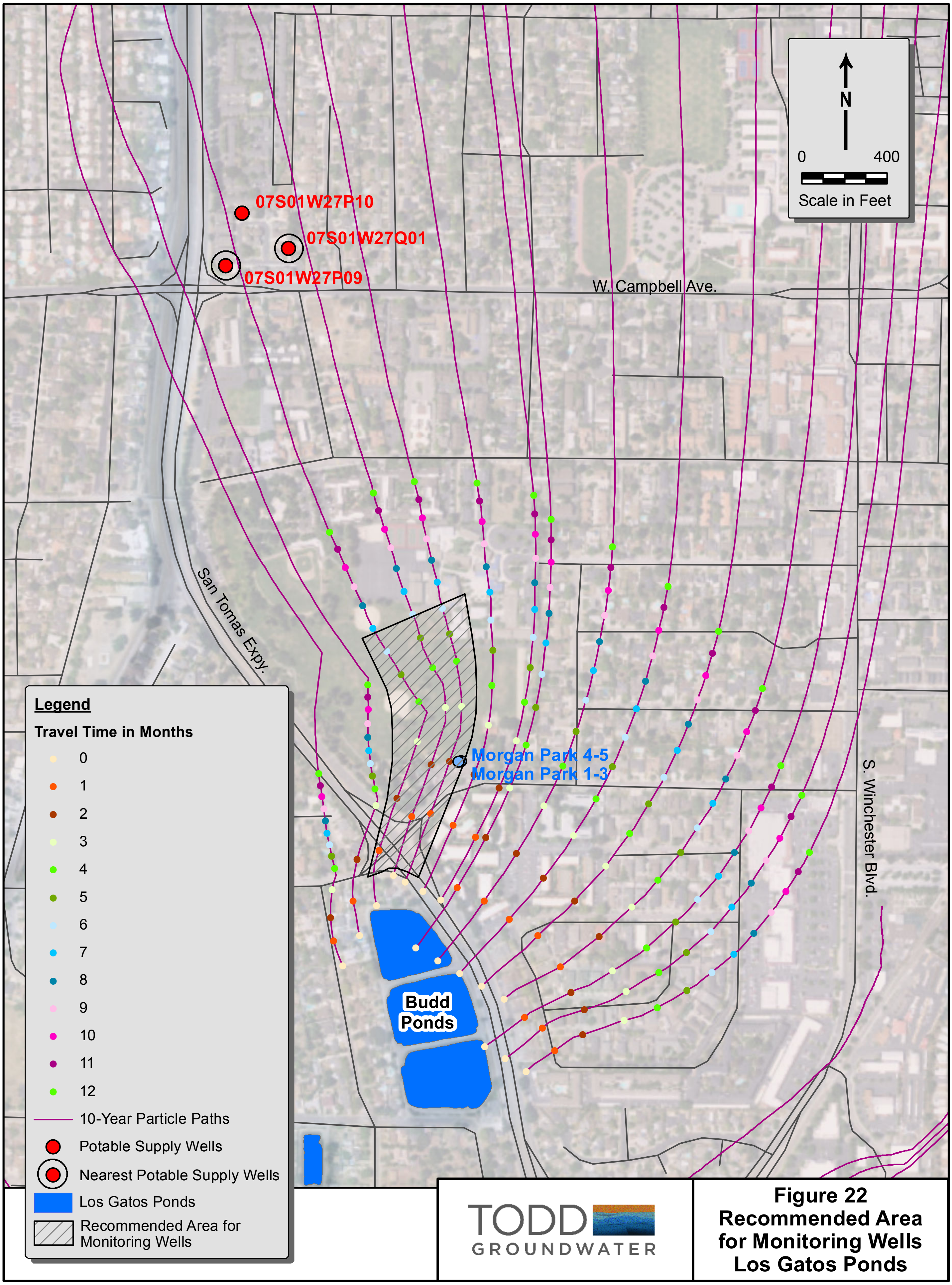


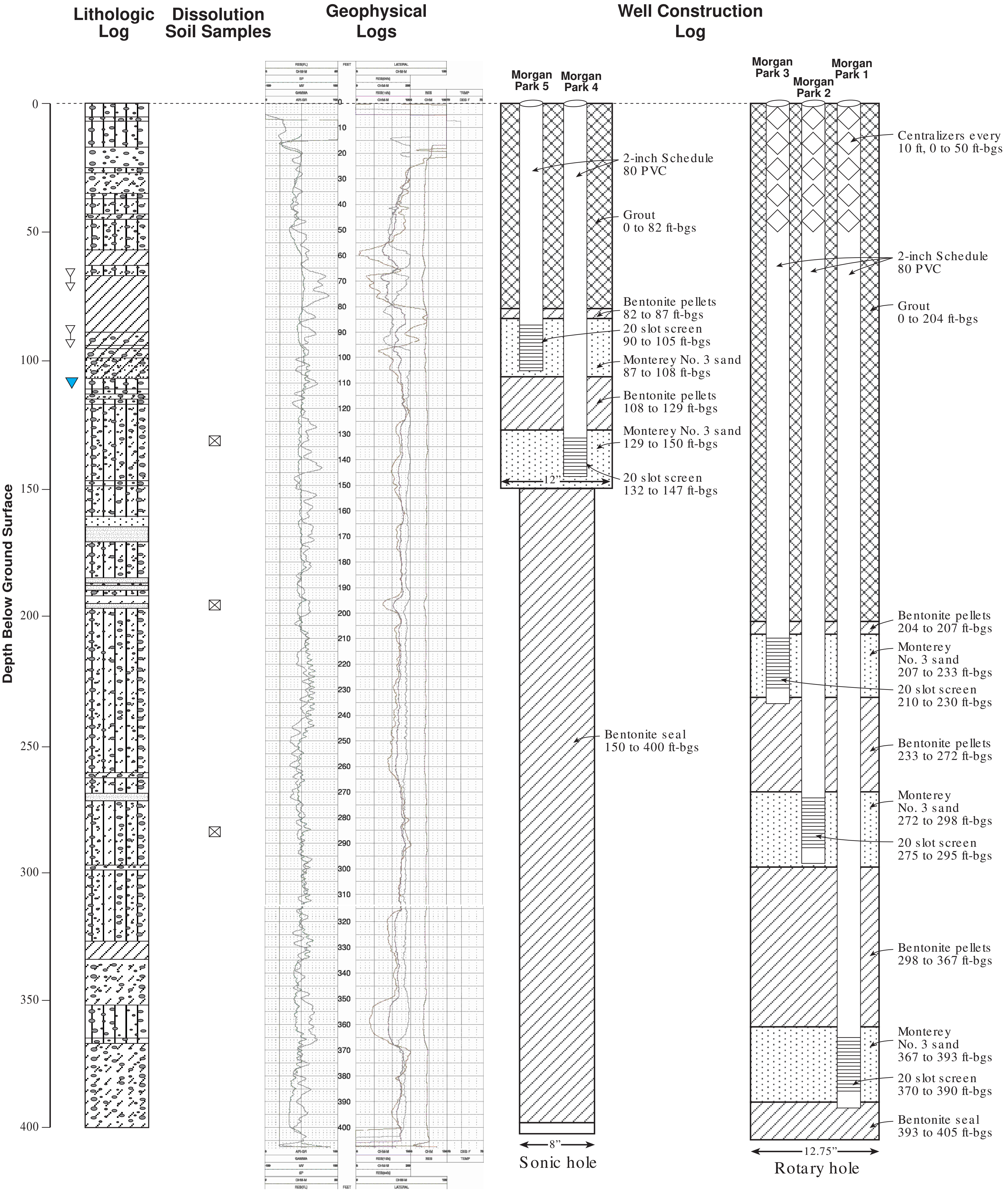
Figure 21
Morgan Park
Monitoring Well

TODD GROUNDWATER



TODD GROUNDWATER

Figure 22
Recommended Area for Monitoring Wells Los Gatos Ponds


Lithologic Log
Dissolution Soil Samples
Geophysical Logs
Well Construction Log
Depth Below Ground Surface
0
50
100
150
200
250
300
350
400
Morgan Park 5
Morgan Park 4
Morgan Park 3
Morgan Park 2
Morgan Park 1
2-inch Schedule 80 PVC
Grout 0 to 82 ft-bgs
Bentonite pellets 82 to 87 ft-bgs
20 slot screen 90 to 105 ft-bgs
Monterey No. 3 sand 87 to 108 ft-bgs
Bentonite pellets 108 to 129 ft-bgs
Monterey No. 3 sand 129 to 150 ft-bgs
20 slot screen 132 to 147 ft-bgs
12"
Bentonite seal 150 to 400 ft-bgs
8"
Sonic hole
Centralizers every 10 ft, 0 to 50 ft-bgs
2-inch Schedule 80 PVC
Grout 0 to 204 ft-bgs
Bentonite pellets 204 to 207 ft-bgs
Monterey No. 3 sand 207 to 233 ft-bgs
20 slot screen 210 to 230 ft-bgs
Bentonite pellets 233 to 272 ft-bgs
Monterey No. 3 sand 272 to 298 ft-bgs
20 slot screen 275 to 295 ft-bgs
Bentonite pellets 298 to 367 ft-bgs
Monterey No. 3 sand 367 to 393 ft-bgs
20 slot screen 370 to 390 ft-bgs
Bentonite seal 393 to 405 ft-bgs
12.75"
Rotary hole
RES(FL)
CHM-M
SP
MV
GAMMA
API-GR
FEET
LATERAL
RES(16N)
RES(64N)
RES
TEMP
DEG F

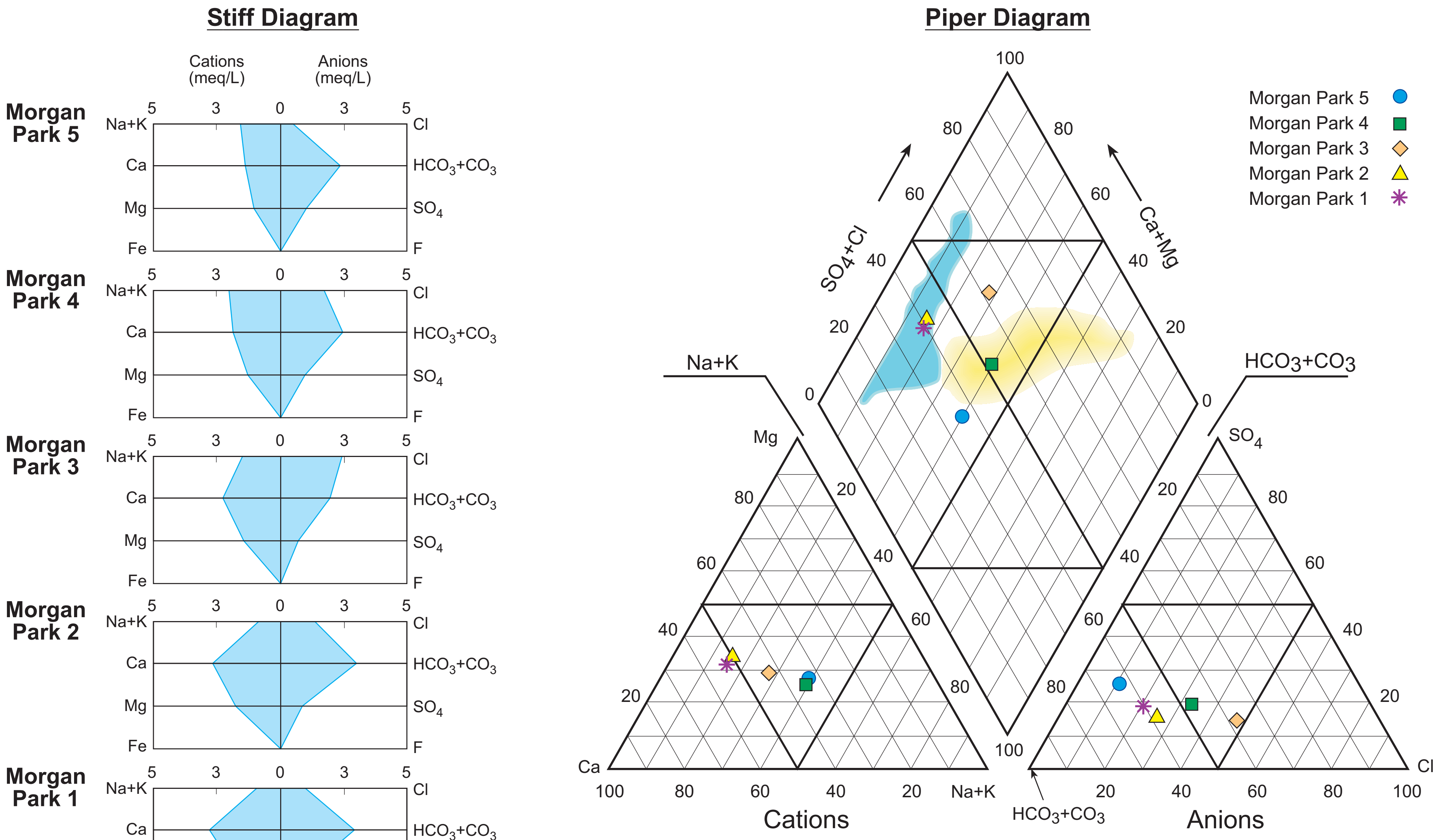
LEGEND

▨	GP - Poorly-graded gravel
▨	GM - Silty gravel
▨	GC - Clayey gravel
▨	SW - Well-graded sand
▨	SP - Poorly-graded sand
▨	SM - Poorly graded sands and silts with clay
▨	SC - Clayey sand
▨	ML - Silt with high plasticity
▨	CH - Inorganic clays of high plasticity, fat clays
▨	CL - Inorganic clay; low plasticity
ft-bgs	feet below ground surface
▽	Potential perched groundwater
▼	Groundwater table
☒	Soil dissolution sample

Note: Drilling began March 7, 2017 and ended on April 6, 2017.

TODD GROUNDWATER

Figure 23
Morgan Park Monitoring Well Geologic, Geophysical, and Well Construction Logs



🟦 Streamflow samples from Santa Cruz Mountain-front runoff 1996(Myhre and Bencala, 1998)

🟨 Monthly imported water 1974, 1975, 1977, Santa Clara Valley Water District

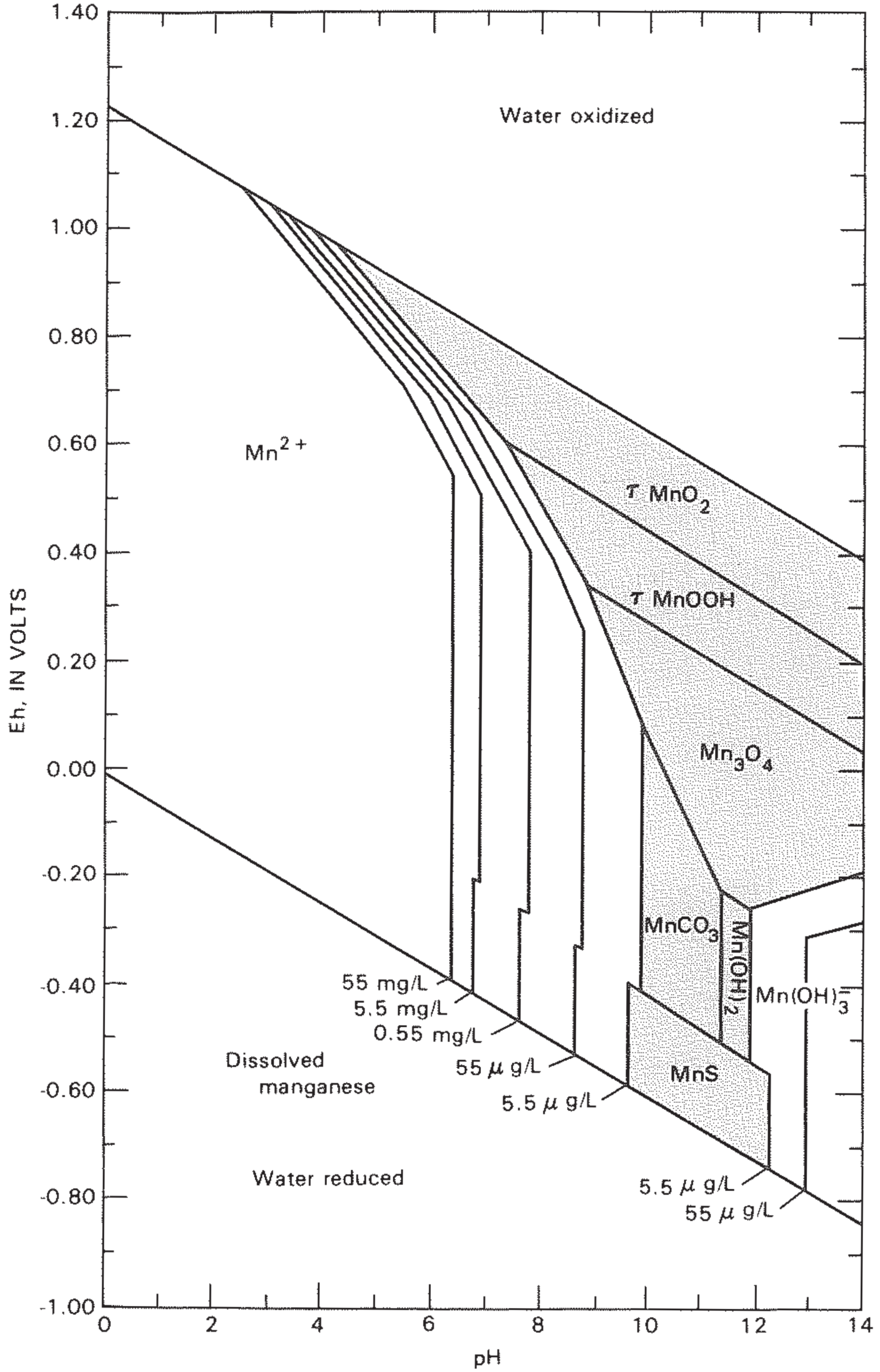
TDS - Total dissolved solids
mg/L - Milligrams per liter
meq/L - Milliequivalents per liter

Na - Sodium
K - Potassium
Ca - Calcium
Mg - Magnesium
Fe - Iron

Cl - Chloride
HCO_3 - Bicarbonate
CO_3 - Carbonate
SO_4 - Sulfate
F - Fluoride

TODD GROUNDWATER

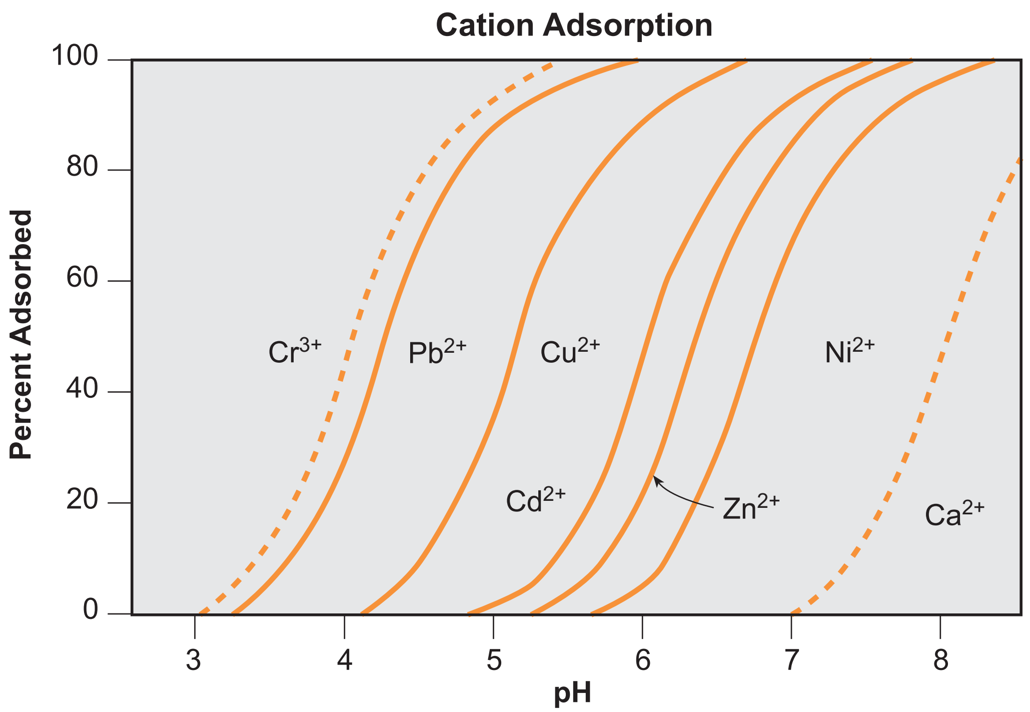
Figure 24
Morgan Park Wells Piper and Stiff Diagrams

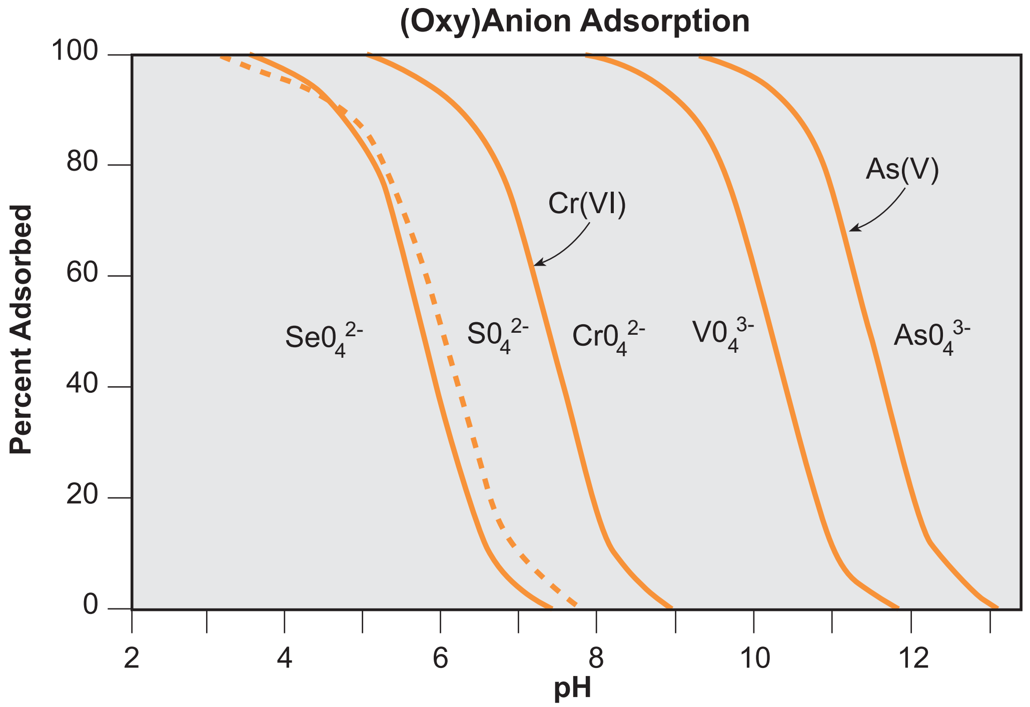


From: Hem, 1989

TODD GROUNDWATER

Figure 25
Manganese
Eh-pH
Diagram

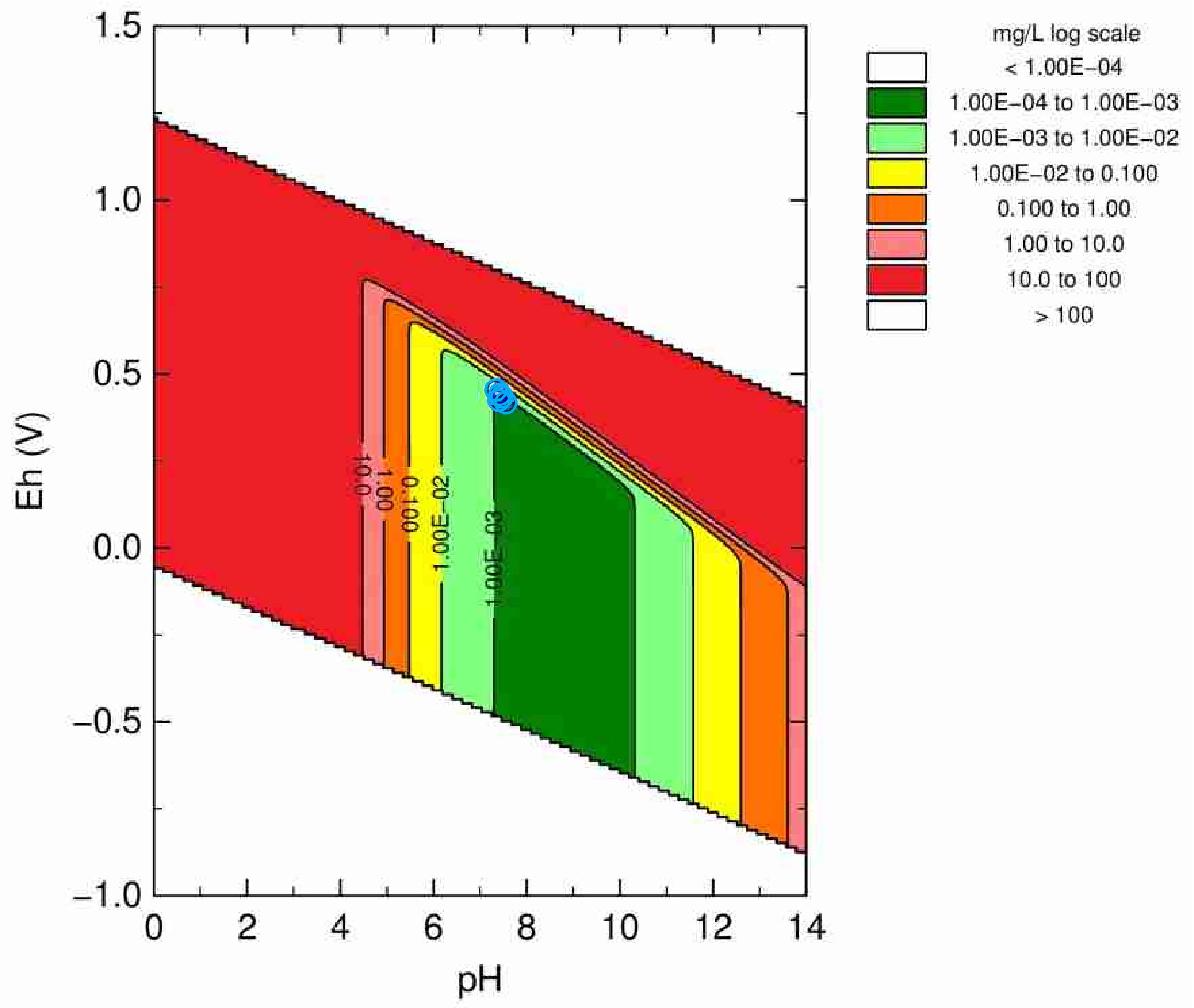




From: Stumm,1992, Langmuir, 1997
and Mahoney, 2014

TODD GROUNDWATER

Figure 26
Cation/Anion Adsorption on Ferric Oxide



- Chromium (Cr) concentrations as a function of Eh and pH with $Cr(OH)_3(A)$ as the only possible phase
- Total Cr concentration in mg/L at 20 mg/L
- Blue Circles - Eh-pH conditions for five analyzed groundwater samples (Morgan Park wells)
- Prepared using PhreePlot (Kinniburgh and Cooper, 2011)
- From Mahoney, 2017
- mg/L - milligrams per liter

TODD GROUNDWATER

Figure 27
$Cr(OH)_3(A)$ Solubility

Appendix A - Field Work Program Details Ford Pond Area and Los Gatos Ponds CPT and Sonic Borings and Ford Pond Area Infiltration Testing

Pre-CPT and Sonic Borings Site Meeting

On September 8, 2016, a site walk was conducted at the Ford Pond site in south San Jose with involved personnel from Todd Groundwater (Todd), Gregg Drilling & Testing, Inc. (Gregg Drilling), Cascade Drilling, L.P. (Cascade), Santa Clara County Parks, and the Santa Clara Valley Water District (District). Proposed Cone Penetrometer Testing (CPT) and sonic borings at the Ford Pond site were marked with white painted stakes for clearance by Underground Service Alert (USA). Access through existing fencing and pathways for the CPT and sonic drill rigs was determined. Todd, District, and Cascade personnel then proceeded to the Page and McGlincy Ponds sites in Campbell (Los Gatos Ponds) to locate two sonic boring (one each at the Page and McGlincy ponds). These were also marked with white painted stakes for USA clearance.

USA Clearance, Drilling Permits, Access, and Health and Safety Plan

For the Ford Pond area CPT (CPT 1 to 5) and drilling locations (Sonic 1 and 2), an initial USA ticket (W625300880) was obtained on September 9, 2016. For the Sonic 3 boring in the existing Ford Pond, a USA ticket was obtained on September 21, 2016. For the Page Ponds site, a USA ticket (W626500832) was obtained on September 21, 2016. For the McGlincy Ponds site, a USA ticket (W626500823) was obtained on September 19, 2016. However, this was subsequently canceled on September 23, 2016 because of the addition of alternative soil[1] boring sites due to filling of McGlincy Ponds No. 3 and 4 for managed aquifer recharge by the District. On September 23, 2016, a new USA ticket (W626700931) was obtained for the alternative McGlincy Pond boring sites.

Drilling permits were obtained from the District for the Ford Pond area (Permit No. E20160909002 issued September 9, 2016), Page Ponds (E20160923002, issued on September 23, 2016) and McGlincy Ponds (E20160923001, issued on September 21, 2016). The District permits are included in **Appendix B**.

At the Ford Pond site, on September 13, 2016 a District crew opened the fence and mowed pathways to the CPT/sonic boring sites. Access to the existing pond for the Sonic 3 boring was via the existing pond's ramp across the bike path, which was protected by plywood boards. Access to Page and McGlincy Ponds was on the gated levee roads.

Todd conducted a health and safety (H&S) plan meeting prior to drilling operations. The H&S plan is included in **Appendix C**.

Final boring locations were noted in the field prior to drilling using a consumer grade hand held GPS device:

---

[1] For this report, the term "soil" refers to unconsolidated alluvium, alluvial fill or alluvial deposits consisting of stratified mixtures of gravel sand, slit, and clay.

Site	Description	N Lat. Dec.	Long Dec.	Datum
Ford Pond Area	CPT-1/Sonic-1	37.25298333	-121.7781833	WGS 84
	CPT-2/Sonic-2	37.25401667	-121.7789667	WGS 84
	CPT-3	37.25348333	-121.7795667	WGS 84
	CPT-4	37.25276667	-121.77945	WGS 84
	CPT-5	37.25326667	-121.7788	WGS 84
	Sonic-3	37.252348	-121.780800	WGS 84
Page Ponds	Sonic-4	37.27016667	-121.95795	WGS 84
McGlincy Pond 5	Sonic-5	37.378495	-121.941924	WGS 84

Ford Pond Area Infiltration Testing and Monitoring Well Installation

The Ford Pond Infiltration Testing field program included the excavation of two infiltration ponds, each pond having an adjacent 2-inch diameter groundwater level monitoring well. On January 4, 2017, Gregg Drilling and Todd staff arrived on site with a full size, truck mounted rig to drill the two monitoring wells to be used in infiltration testing. The ground was deemed too muddy and soft for access with the large rig due to recent rain events, so a smaller, 12,000 pound, track mounted access rig was rescheduled for Monday, January 9, 2017.

Thursday, January 5, 2017, Cascade arrived on site to excavate the test infiltration basins. A CASE model CX160C excavator was used to construct the two test infiltration basins. The first basin, (further referred to as Basin 1) located in the central region of the study area was excavated to have approximate dimensions of 20 feet (ft) by 20 ft by five ft deep. The second basin, (further referred to as Basin 2) located across the bike path and adjacent to the Coyote Creek in the existing Ford Pond was excavated to approximate dimensions of 10 ft by 10 ft by six ft deep. During the excavation of Basin 1, material excavated was silt with minor amounts of clay to the bottom of the pond. Basin 2 material was much coarser-grained than Basin 1, consisting of mostly silty sands and gravel. Five-foot tall stage height gauges were constructed in each basin using metal tape measures and half-inch diameter ½” PVC pipe.

Additional materials were supplied to set up the construction test including fencing and plumbing (pipes, meters, valves, and a tank, all supplied by Rain for Rent) and traffic control signage for Eden Park Place and the bike path crossing (supplied by Statewide Safety & Signs). Construction of the plumbing set up that would supply water from the fire hydrant at the end of Eden Park Place (Great Oaks Water 6065) to the basins began on Friday, January 6, 2017.

On Monday, January 9, 2017, Gregg Drilling arrived on site with a Rhino 5MT limited access, track mounted rig for drilling and construction of the two monitoring wells, one adjacent to each test infiltration basin. The monitoring well located on the eastern edge of Basin 1 (further referred to as MW-1) was drilled to a depth of 45 ft. Silt (ML) was logged to a depth of 20 ft, after which, silty gravel (GM) was logged to 25 ft. At 25 ft depth, silty sands and gravel (GM-SM) were logged until 40 ft, where a decreasing amount of gravel (GM grading to ML) was noted until total depth was reached. The well was perforated from 40 to 45 feet below ground surface (ft-bgs) with machine slotted Schedule 40 PVC screens with 0.010-inch slots (10-slot). Gravel pack consisting of No. 2-12 graded sand was placed from 37 to 45 ft-bgs, and a bentonite seal was placed from 34 to 37 ft-bgs. A sanitary surface seal consisting of Portland cement and concrete was placed in the well annulus from ground surface to 34 ft-bgs and the surface completion was a 12-inch diameter locking standpipe. The monitoring well located on the western edge of Basin 2 (MW-2) was drilled to a depth of 25 feet; ground surface elevation at MW-2 is about 20 feet lower than MW-1. MW-2 contained clay and silt (CL-ML) at the surface, with a silty gravel (GM) beginning at about 2 ft-bgs and continuing to 20 ft-bgs. From 20 to 25 ft-bgs, the material was silt (ML). The well was perforated from 20 to25 ft-bgs with 10-slot machine slotted Schedule 40 PVC screens. A gravel pack of No. 2-12 graded sand was placed from 17 to 25 ft-bgs and a bentonite seal was placed from 14 to 17 ft-bgs. The Portland cement and concrete sanitary seal was placed from ground surface to 14 ft-bgs and a 12-inch diameter locking standpipe was used as the surface completion.

After allowing time for the sanitary seals to set, the wells were developed by Gregg Drilling on Tuesday, January 10, 2017. On Wednesday, January 11, 2017, Todd staff arrived on site to measure water levels. MW-1 had a depth to water of 31.23 feet below the top of casing at 1:15 PM. MW2 had a depth to water of 11.62 ft below top of casing at 1:25 PM on January 11. Datalogging transducers were installed in both monitoring wells to collect water levels on a one-minute interval in the leadup to, during, and after infiltration testing.

As plumbing set up progressed and Todd staff was on site to test and refine the piping and tank setup, transducer data was downloaded. Todd staff met with Field Solutions staff on January 17, 2017 to discuss how the infiltration test would be managed, including the filling of the infiltration ponds and tank, reading of meters by infiltration ponds and hydrant, monitoring of pond stages and water levels, and documentation of field data. The 10-day infiltration test began on January 20, 2017 and ended on January 30, 2017 at 9:41 AM. At the conclusion of the infiltration testing, both ponds were filled and then the hydrant was turned off and Rain for Rent removed the plumbing materials.

The transducers were left in place in the monitoring wells after the conclusion of the infiltration test to continue to collect water levels until Wednesday, February 8, 2017.

Todd and Gregg Drilling planned to destroy the monitoring wells on February 22, 2017, but the flooding of Coyote Creek into Ford Pond made accessing the wells impossible. These wells were destroyed in June.

Appendix B - District Permits for Vadose Zone Borings

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 1 of 2

Date Issued: 9-23-16	Expiration Date: 9-23-17	District Permit No.: E20160923001
Client (if different from property owner): Santa Clara Valley Water District	**Property Owner**: Santa Clara Valley Water District	Name of Business/Residence at Site: McGlincy Ponds
Client's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Address of Site: McGlincy Ponds on Campbell Tech Pkwy City, State, Zip Campbell, CA 95008
Telephone No.: (408) 265-2600	Telephone No.: (408) 265-2600	Assessor's Parcel No. of Site: Book 412 Page 31 Parcel 025

Consulting Company Name: Todd Engineers, Chad Taylor	Drilling Company Name: Cascade Drilling	
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501	Address: 120 S 23rd St City, State, Zip Richmond, CA 94804	
Telephone No.: (510) 747-6920	Telephone No.: (510) 478-0858	C-57/C-61 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

In space at right, sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks, or topographic features.

How many borings will be installed on parcel? 1

☒ Proposed borings on District property/easement (See General Condition F, page 2.)

☒ Within 50 feet of the top of a creek bank or District facility

Proposed depth of boring(s):

☒ 45 to 150 feet
☐ 151 to 300 feet
☐ Over 300 feet

NOTE: No permit is required for borings under 45 feet deep.

Boring Type:	Boring Use:
☐ Hollow stem	☒ Geotechnical Investigation
☐ Rotary	☐ Environmental Investigation
☐ CPT	☐ Material Emplacement
☐ Hydropunch	☐ Sensor Emplacement
☒ Other: Sonic	☐ Other:

SITE PLAN
(Please draw accurately)

See Attached Figure 1. 1 sonic hole by Cascade Drilling.

N

RECEIVED
SEP 15, 2016
S.C.V.W.D.
WELLS

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ.

Signature of Property Owner/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/15/16
Signature of Client/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/15/16
Signature of Driller/Agent:	Print/Type Name: Roger Pierno For Cascade Drilling	Date: 9/15/16
Signature of Consultant/Agent:	Print/Type Name: Roger Pierno for Todd Engineers	Date: 9/15/16

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 2 of 2

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

GENERAL CONDITIONS

A. **District** (telephone 408-630-2660) **must be notified a minimum of one working day before the exploratory boring is backfilled**. An authorized District representative must be on site to witness the sealing operation. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification under penalty of perjury that the seal was constructed in accordance with the District Well Standards.

B. This permit is valid only for the purpose specified herein. Boring destruction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

C. This permit is only valid for the Assessor's Parcel No. indicated on it.

D. This permit may be voided if it contains incorrect information.

E. Borings shall be sealed within 24 hours following completion of testing or sampling activities. Borings shall not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings shall be secured such that they do not endanger public health.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-630-2350, -2217, or -2253).

G. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

H. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

I. A current C-57 or C-61 Contractor's License is required for work associated with this permit.

J. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, boring destruction, and/or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statues regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where the work is being completed.

K. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

L. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

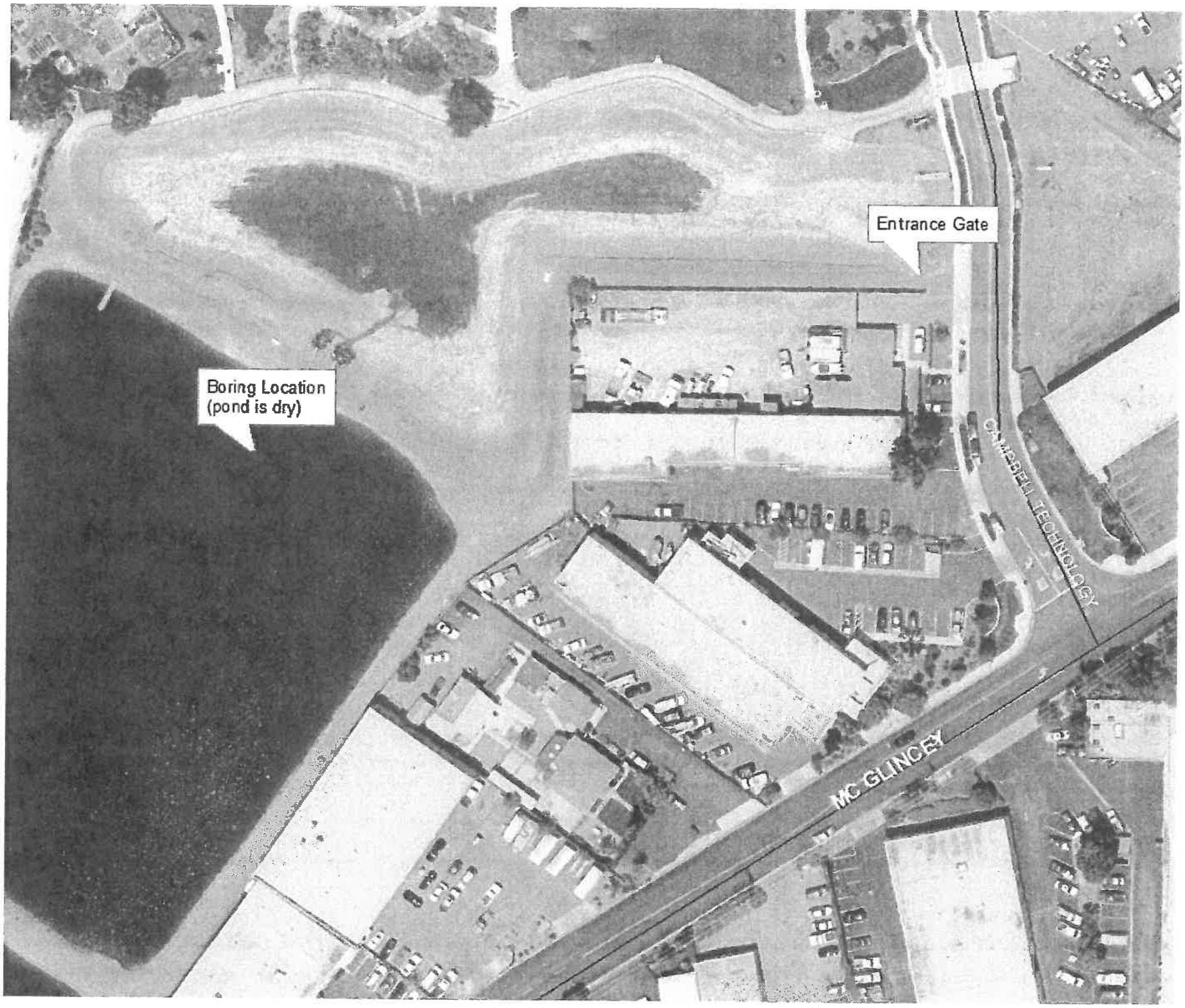
M. This permit shall be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

N. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

Permit Approved by:	Date: 9-23-16

Please allow 10 working days to process this application.

Figure 1, Location of boring at McGlincy Ponds in Campbell, CA



Santa Clara County Clerk–Recorder's Office
State of California

L 112235

Document No.: 19550
Number of Pages: 4
Filed and Posted On: 9/01/2015
Through: 10/01/2015
CRO Order Number:
Fee Total: 50.00

REGINA ALCOMENDRAS, County Clerk–Recorder
by Raymund Reyes, Deputy Clerk–Recorder, R.R.

County of Santa Clara
Office of the County Clerk-Recorder
Business Division

County Government Center
70 West Hedding Street, E. Wing, 1st Floor
San Jose, California 95110 (408) 299-5688

CEQA DOCUMENT DECLARATION

ENVIRONMENTAL FILING FEE RECEIPT

PLEASE COMPLETE THE FOLLOWING:

1. LEAD AGENCY: Santa Clara Valley Water District
2. PROJECT TITLE: Campbell Monitoring Wells Installation and Geotechnical Borings Investigation
3. APPLICANT NAME: Elise Latedjou-Durand PHONE: 408-630-3205
4. APPLICANT ADDRESS: 5750 Almaden Expressway. San Jose, CA 95118
5. PROJECT APPLICANT IS A: ☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity
6. NOTICE TO BE POSTED FOR 30 DAYS.
7. CLASSIFICATION OF ENVIRONMENTAL DOCUMENT

a. PROJECTS THAT ARE SUBJECT TO DFG FEES

☐	1. ENVIRONMENTAL IMPACT REPORT (PUBLIC RESOURCES CODE §21152)	$ 3,069.75	$ 0.00
☐	2. NEGATIVE DECLARATION (PUBLIC RESOURCES CODE §21080(C)	$ 2,210.00	$ 0.00
☐	3. APPLICATION FEE WATER DIVERSION (STATE WATER RESOURCES CONTROL BOARD ONLY)	$ 850.00	$ 0.00
☐	4. PROJECTS SUBJECT TO CERTIFIED REGULATORY PROGRAMS	$ 1,043.75	$ 0.00
☐	5. COUNTY ADMINISTRATIVE FEE (REQUIRED FOR a-1 THROUGH a-4 ABOVE) Fish & Game Code §711.4(e)	$ 50.00	$ 0.00

b. PROJECTS THAT ARE EXEMPT FROM DFG FEES

☒	1. NOTICE OF EXEMPTION ($50.00 COUNTY ADMINISTRATIVE FEE REQUIRED)	$ 50.00	$ 50.00
☐	2. A COMPLETED "CEQA FILING FEE NO EFFECT DETERMINATION FORM" FROM THE DEPARTMENT OF FISH & GAME, DOCUMENTING THE DFG'S DETERMINATION THAT THE PROJECT WILL HAVE NO EFFECT ON FISH, WILDLIFE AND HABITAT, OR AN OFFICIAL, DATED RECEIPT / PROOF OF PAYMENT SHOWING PREVIOUS PAYMENT OF THE DFG FILING FEE FOR THE *SAME PROJECT IS ATTACHED ($50.00 COUNTY ADMINISTRATIVE FEE REQUIRED) DOCUMENT TYPE: ☐ ENVIRONMENTAL IMPACT REPORT ☐ NEGATIVE DECLARATION	$ 50.00	$ 0.00

c. NOTICES THAT ARE *NOT* SUBJECT TO DFG FEES *OR* COUNTY ADMINISTRATIVE FEES

☐ NOTICE OF PREPARATION ☐ NOTICE OF INTENT NO FEE $ NO FEE

8. OTHER: ______ FEE (IF APPLICABLE): $ ______
9. TOTAL RECEIVED.. $ 50.00

*NOTE: "*SAME PROJECT*" MEANS NO CHANGES. IF THE DOCUMENT SUBMITTED IS NOT THE SAME (OTHER THAN DATES), A "NO EFFECT DETERMINATION" LETTER FROM THE DEPARTMENT OF FISH AND GAME FOR THE SUBSEQUENT FILING OR THE APPROPRIATE FEES ARE REQUIRED.

THIS FORM MUST BE COMPLETED AND ATTACHED TO THE FRONT OF ALL CEQA DOCUMENTS LISTED ABOVE (*INCLUDING COPIES*) SUBMITTED FOR FILING. WE WILL NEED AN ORIGINAL (WET SIGNATURE) AND THREE COPIES. *(YOUR ORIGINAL WILL BE RETURNED TO YOU AT THE TIME OF FILING.)*

CHECKS FOR ALL FEES SHOULD BE MADE PAYABLE TO: SANTA CLARA COUNTY CLERK-RECORDER

PLEASE NOTE: FEES ARE ANNUALLY ADJUSTED (Fish & Game Code §711.4(b); PLEASE CHECK WITH THIS OFFICE AND THE DEPARTMENT OF FISH AND GAME FOR THE LATEST FEE INFORMATION.

"*. . . NO PROJECT SHALL BE OPERATIVE, VESTED, OR FINAL, NOR SHALL LOCAL GOVERNMENT PERMITS FOR THE PROJECT BE VALID, UNTIL THE FILING FEES REQUIRED PURSUANT TO THIS SECTION ARE PAID.*" Fish & Game Code §711.4(c)(3)

(Fees Effective 01-01-2015)

NOTICE OF EXEMPTION

To: Santa Clara County
Clerks Office, Business Division
70 West Hedding Street
San Jose CA 95110

From: Santa Clara Valley Water District
5750 Almaden Expressway
San Jose CA 95118

Project Title: Campbell Monitoring Wells Installation and Geotechnical Borings Investigation

Project Location–Specific: The monitoring wells and geotechnical borings are located within three sites (John D. Morgan Park; Page and McGlincey Ponds) as shown in **Attachment 1.**

Project Location-City: Campbell

Project Location-County: Santa Clara

Project Purpose: The objective of the proposed project consists of basic data collection to establish baseline conditions prior to implementing the indirect potable recycled water reuse project.

Name of Public Agency Approving Project: Santa Clara Valley Water District

Name of Agency or Person Carrying Out Project: Santa Clara Valley Water District

Exempt Status: (*check one*)

☐ Ministerial [Sec. 21080 (b) (1); 15268];
☐ Declared Emergency [Sec. 21080 (b) (3); 15269 (a)];
☐ Emergency Project [Sec. 21080 (b) (c)];
☒ Categorical Exemption, Section 15306
☐ Statutory Exemption, State code number:

Reasons why project is exempt: The proposed project consists of collecting data from new installed monitoring wells and geotechnical borings. No major disturbance to an environmental resource is anticipated. This project qualifies for the California Environmental Quality Act (CEQA) Guidelines Class 6, Section 15306, "Information Collection". No exceptions to the categorical exemption apply.

CEQA Guidelines Class 6, Section 15306, states:

> "Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded."

Description of Project:

File#: 19550 9/01/2015

The proposed project consists of installing five monitoring wells in two boreholes at John D. Morgan Park and drilling two geotechnical borings at Page and McGlincey Ponds as shown in **Attachment 1**. Borings and monitoring wells will be drilled to a depth of up to 400 feet and will have 22 inches in diameter. A flush mounted well box will be installed and set in concrete. The borings will be sealed upon completion of soil core retrieval. The work will be accomplished using equipment such as potable pumps, shaker table, drilling rigs, support trucks, and hand tools. Discarded materials will be disposed of appropriately. Sampling will be conducted quarterly. Maintenance activities will consist of periodical removal of accumulated silt and sediment at the bottom of the well casings. The work is expected to start in September 2015 and will take approximately eight weeks to complete. Project activities will occur between the hours of 8 am and 5 pm.

Lead Agency: Santa Clara Valley Water District

Contact Person: Elise Latedjou-Durand, Environmental Planner II

Area Code/Telephone/Extension: (408) 630-3205

Approval:

Garth C. Hall

Garth Hall, DOO

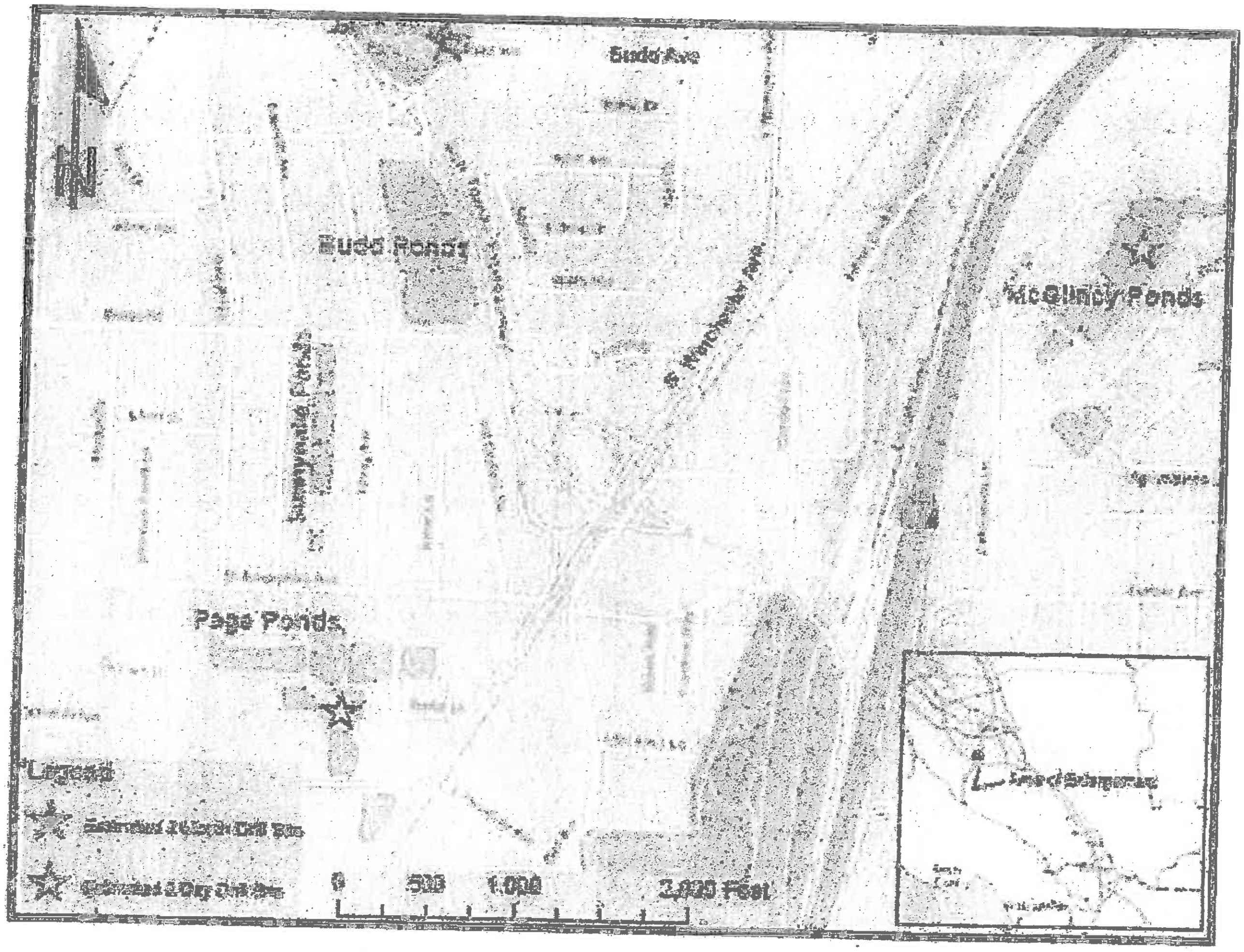
8/25/15

Date

Attachment 1: Project Locations

Attachment 1: Project Locations

Campbell Monitoring Wells Installation and Geotechnical Borings Investigation



File#: 19550 9/01/2015

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 1 of 2

Date Issued: 9-23-16	Expiration Date: 9-23-17	District Permit No.: E20160923002
Client (if different from property owner): Santa Clara Valley Water District	**Property Owner**: Santa Clara Valley Water District	Name of Business/Residence at Site: Page Ponds on Hacienda Avenue
Client's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Address of Site: 400 Hacienda Avenue City, State, Zip Campbell, CA 95008
Telephone No.: (408) 265-2600	Telephone No.: (408) 265-2600	Assessor's Parcel No. of Site: Book 406 Page 10 Parcel 018

Consulting Company Name: Todd Engineers, Chad Taylor	Drilling Company Name: Cascade Drilling	
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501	Address: 120 S 23rd St City, State, Zip Richmond, CA 94804	
Telephone No.: (510) 747-6920	Telephone No.: (510) 478-0858	C-57/C-61 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

In space at right, sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks, or topographic features.

How many borings will be installed on parcel?
1

☒ Proposed borings on District property/easement (See General Condition F, page 2.)
☒ Within 50 feet of the top of a creek bank or District facility

Proposed depth of boring(s):
☒ 45 to 150 feet
☐ 151 to 300 feet
☐ Over 300 feet

NOTE: No permit is required for borings under 45 feet deep.

Boring Type:	Boring Use:
☐ Hollow stem	☒ Geotechnical Investigation
☐ Rotary	☐ Environmental Investigation
☐ CPT	☐ Material Emplacement
☐ Hydropunch	☐ Sensor Emplacement
☒ Other: Sonic	☐ Other:

SITE PLAN
(Please draw accurately)

See Attached Figure 1. 1 sonic hole by Cascade Drilling.

N

RECEIVED
SEP 15, 2016
S.C.V.W.D.
WELLS

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ.

Signature of Property Owner/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/15/16
Signature of Client/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/15/16
Signature of Driller/Agent:	Print/Type Name: Roger Pierno For Cascade Drilling	Date: 9/15/16
Signature of Consultant/Agent:	Print/Type Name: Roger Pierno for Todd Engineers	Date: 9/15/16

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

GENERAL CONDITIONS

A. **District** (telephone 408-630-2660) **must be notified a minimum of one working day before the exploratory boring is backfilled**. An authorized District representative must be on site to witness the sealing operation. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification under penalty of perjury that the seal was constructed in accordance with the District Well Standards.

B. This permit is valid only for the purpose specified herein. Boring destruction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

C. This permit is only valid for the Assessor's Parcel No. indicated on it.

D. This permit may be voided if it contains incorrect information.

E. Borings shall be sealed within 24 hours following completion of testing or sampling activities. Borings shall not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings shall be secured such that they do not endanger public health.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-630-2350, -2217, or -2253).

G. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

H. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

I. A current C-57 or C-61 Contractor's License is required for work associated with this permit.

J. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, boring destruction, and/or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statues regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where the work is being completed.

K. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

L. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

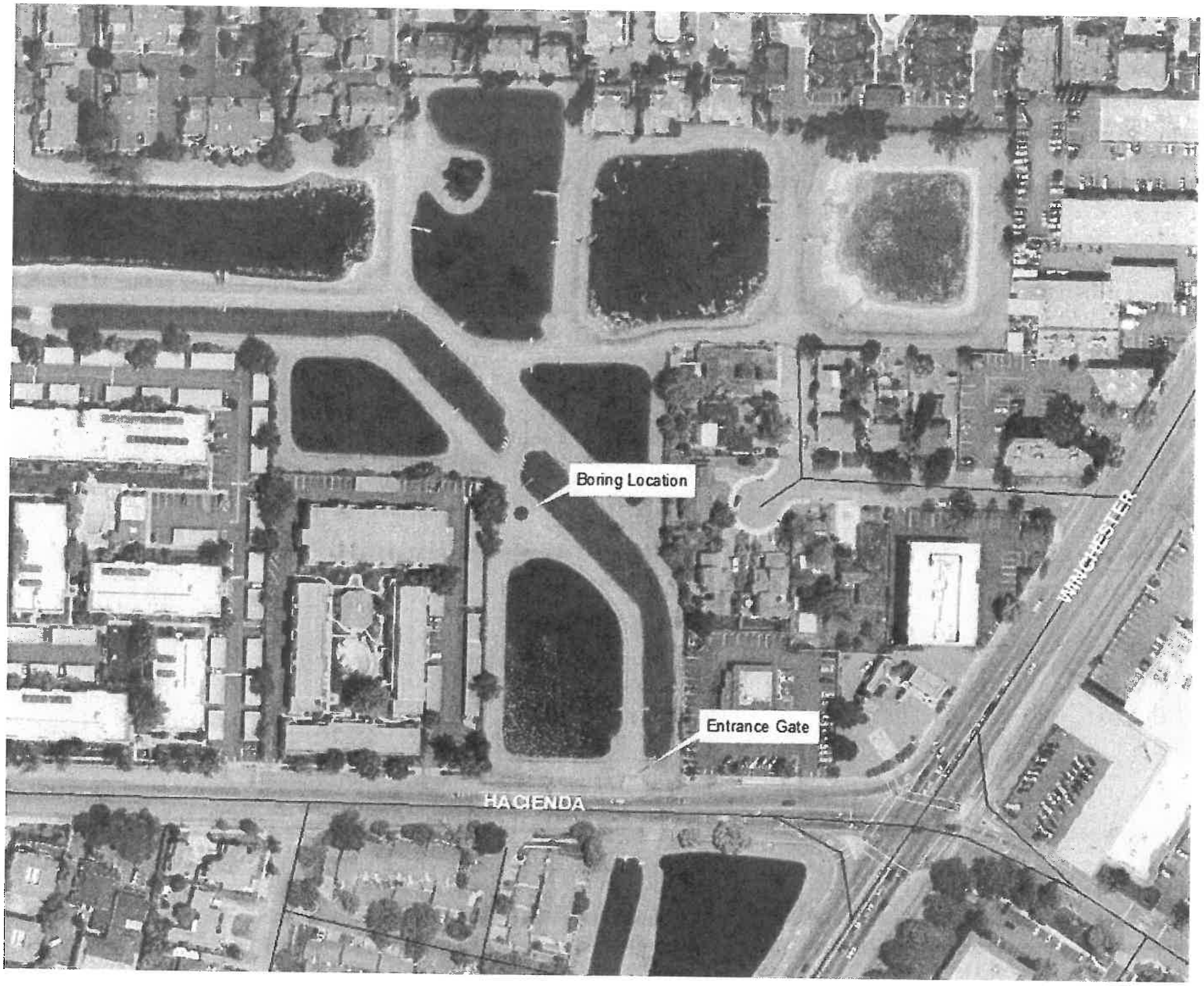
M. This permit shall be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

N. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

Permit Approved by:	Date: 9-23-16

Please allow 10 working days to process this application.

Figure 1, Boring Location at Page Ponds in Campbell, CA



Santa Clara County Clerk–Recorder's Office
State of California

L 112235

Document No.: 19550
Number of Pages: 4
Filed and Posted On: 9/01/2015
Through: 10/01/2015
CRO Order Number:
Fee Total: 50.00

REGINA ALCOMENDRAS, County Clerk–Recorder
by Raymund Reyes, Deputy Clerk–Recorder, R.R.

County of Santa Clara
Office of the County Clerk-Recorder
Business Division

County Government Center
70 West Hedding Street, E. Wing, 1st Floor
San Jose, California 95110 (408) 299-5688

CEQA DOCUMENT DECLARATION

ENVIRONMENTAL FILING FEE RECEIPT

PLEASE COMPLETE THE FOLLOWING:

1. LEAD AGENCY: Santa Clara Valley Water District
2. PROJECT TITLE: Campbell Monitoring Wells Installation and Geotechnical Borings Investigation
3. APPLICANT NAME: Elise Latedjou-Durand PHONE: 408-630-3205
4. APPLICANT ADDRESS: 5750 Almaden Expressway. San Jose, CA 95118
5. PROJECT APPLICANT IS A: ☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity
6. NOTICE TO BE POSTED FOR 30 DAYS.
7. CLASSIFICATION OF ENVIRONMENTAL DOCUMENT

a. PROJECTS THAT ARE SUBJECT TO DFG FEES

☐ 1. ENVIRONMENTAL IMPACT REPORT (PUBLIC RESOURCES CODE §21152)	$ 3,069.75	$ 0.00
☐ 2. NEGATIVE DECLARATION (PUBLIC RESOURCES CODE §21080(C)	$ 2,210.00	$ 0.00
☐ 3. APPLICATION FEE WATER DIVERSION (STATE WATER RESOURCES CONTROL BOARD ONLY)	$ 850.00	$ 0.00
☐ 4. PROJECTS SUBJECT TO CERTIFIED REGULATORY PROGRAMS	$ 1,043.75	$ 0.00
☐ 5. COUNTY ADMINISTRATIVE FEE (REQUIRED FOR a-1 THROUGH a-4 ABOVE) Fish & Game Code §711.4(e)	$ 50.00	$ 0.00

b. PROJECTS THAT ARE EXEMPT FROM DFG FEES

☒ 1. NOTICE OF EXEMPTION ($50.00 COUNTY ADMINISTRATIVE FEE REQUIRED)	$ 50.00	$ 50.00
☐ 2. A COMPLETED "CEQA FILING FEE NO EFFECT DETERMINATION FORM" FROM THE DEPARTMENT OF FISH & GAME, DOCUMENTING THE DFG'S DETERMINATION THAT THE PROJECT WILL HAVE NO EFFECT ON FISH, WILDLIFE AND HABITAT, OR AN OFFICIAL, DATED RECEIPT / PROOF OF PAYMENT SHOWING PREVIOUS PAYMENT OF THE DFG FILING FEE FOR THE *SAME PROJECT IS ATTACHED ($50.00 COUNTY ADMINISTRATIVE FEE REQUIRED) DOCUMENT TYPE: ☐ ENVIRONMENTAL IMPACT REPORT ☐ NEGATIVE DECLARATION	$ 50.00	$ 0.00

c. NOTICES THAT ARE *NOT* SUBJECT TO DFG FEES *OR* COUNTY ADMINISTRATIVE FEES

☐ NOTICE OF PREPARATION ☐ NOTICE OF INTENT	NO FEE	$ NO FEE

8. OTHER: ______ FEE (IF APPLICABLE): $______
9. TOTAL RECEIVED.. $ 50.00

*NOTE: "*SAME PROJECT*" MEANS NO CHANGES. IF THE DOCUMENT SUBMITTED IS NOT THE SAME (OTHER THAN DATES), A "NO EFFECT DETERMINATION" LETTER FROM THE DEPARTMENT OF FISH AND GAME FOR THE SUBSEQUENT FILING OR THE APPROPRIATE FEES ARE REQUIRED.

THIS FORM MUST BE COMPLETED AND ATTACHED TO THE FRONT OF ALL CEQA DOCUMENTS LISTED ABOVE (*INCLUDING COPIES*) SUBMITTED FOR FILING. WE WILL NEED AN ORIGINAL (WET SIGNATURE) AND THREE COPIES. *(YOUR ORIGINAL WILL BE RETURNED TO YOU AT THE TIME OF FILING.)*

CHECKS FOR ALL FEES SHOULD BE MADE PAYABLE TO: SANTA CLARA COUNTY CLERK-RECORDER

PLEASE NOTE: FEES ARE ANNUALLY ADJUSTED (Fish & Game Code §711.4(b); PLEASE CHECK WITH THIS OFFICE AND THE DEPARTMENT OF FISH AND GAME FOR THE LATEST FEE INFORMATION.

"... NO PROJECT SHALL BE OPERATIVE, VESTED, OR FINAL, NOR SHALL LOCAL GOVERNMENT PERMITS FOR THE PROJECT BE VALID, UNTIL THE FILING FEES REQUIRED PURSUANT TO THIS SECTION ARE PAID." Fish & Game Code §711.4(c)(3)

(Fees Effective 01-01-2015)

NOTICE OF EXEMPTION

To:
Santa Clara County
Clerks Office, Business Division
70 West Hedding Street
San Jose CA 95110

From:
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose CA 95118

Project Title: Campbell Monitoring Wells Installation and Geotechnical Borings Investigation

Project Location–Specific: The monitoring wells and geotechnical borings are located within three sites (John D. Morgan Park; Page and McGlincey Ponds) as shown in **Attachment 1.**

Project Location-City: Campbell

Project Location-County: Santa Clara

Project Purpose: The objective of the proposed project consists of basic data collection to establish baseline conditions prior to implementing the indirect potable recycled water reuse project.

Name of Public Agency Approving Project: Santa Clara Valley Water District

Name of Agency or Person Carrying Out Project: Santa Clara Valley Water District

Exempt Status: (*check one*)

☐ Ministerial [Sec. 21080 (b) (1); 15268];
☐ Declared Emergency [Sec. 21080 (b) (3); 15269 (a)];
☐ Emergency Project [Sec. 21080 (b) (c)];
☒ Categorical Exemption, Section 15306
☐ Statutory Exemption, State code number:

Reasons why project is exempt: The proposed project consists of collecting data from new installed monitoring wells and geotechnical borings. No major disturbance to an environmental resource is anticipated. This project qualifies for the California Environmental Quality Act (CEQA) Guidelines Class 6, Section 15306, "Information Collection". No exceptions to the categorical exemption apply.

CEQA Guidelines Class 6, Section 15306, states:

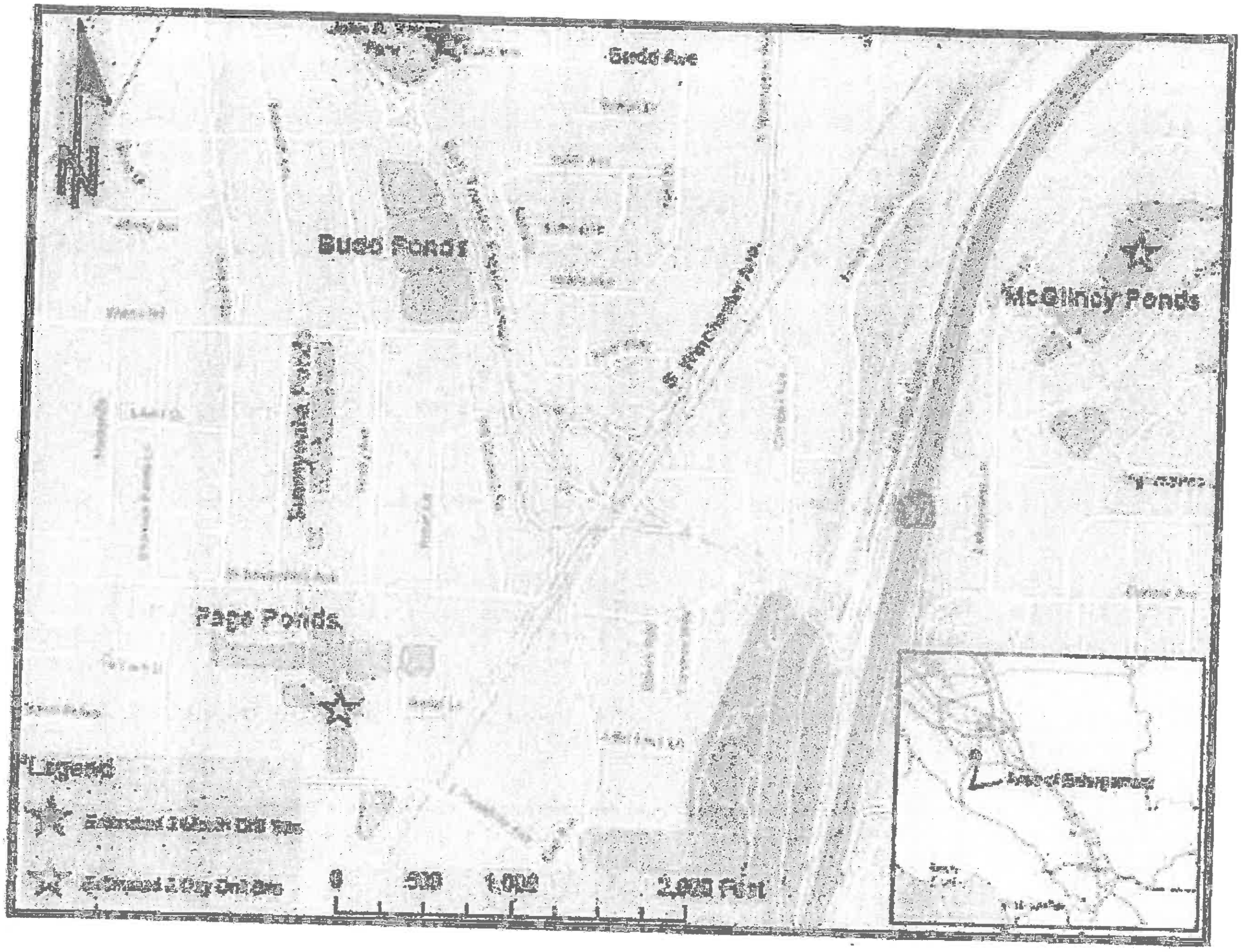
> "Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded."

Description of Project:

File#: 19550 9/01/2015

Attachment 1: Project Locations

Campbell Monitoring Wells Installation and Geotechnical Borings Investigation



File#: 19550 9/01/2016

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 1 of 2

Date Issued: 9/9/2016	Expiration Date: 9/9/2017	District Permit No.: E20160909002
Client (if different from property owner): Santa Clara Valley Water District	**Property Owner**: County of Santa Clara Parks Department	Name of Business/Residence at Site: None, undeveloped park land
Client's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Address: 298 Garden Hill Drive City, State, Zip Los Gatos,CA. 95032	Address of Site: Park land at end of Eden Park Pl City, State, Zip San Jose, CA 95138
Telephone No.: (408) 265-2600	Telephone No.: 408.355.2200	Assessor's Parcel No. of Site: Book 678 Page 05 Parcel 060

Consulting Company Name: Todd Engineers, Chad Taylor	Drilling Company Name: Greg Drilling	
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501	Address: 950 Howe Road City, State, Zip Martinez, CA 94553	
Telephone No.: (510) 747-6920	Telephone No.: (925) 313-5800	C-57/C-61 License No.: 485165
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

In space at right, sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks, or topographic features.

How many borings will be installed on parcel? 8

☐ Proposed borings on District property/easement (See General Condition F, page 2.)

☐ Within 50 feet of the top of a creek bank or District facility

Proposed depth of boring(s):

☒ 45 to 150 feet
☐ 151 to 300 feet
☐ Over 300 feet

NOTE: No permit is required for borings under 45 feet deep.

Boring Type:	Boring Use:
☐ Hollow stem	☒ Geotechnical Investigation
☐ Rotary	☐ Environmental Investigation
☒ CPT	☐ Material Emplacement
☐ Hydropunch	☐ Sensor Emplacement
☒ Other: Sonic	☐ Other:

SITE PLAN
(Please draw accurately)

See Attached Figure 1. Up to 6 CPT holes by Gregg and 2 sonic holes by Cascade.

N

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ.

Signature of Property Owner/Agent:	Print/Type Name: Roger Pierno for SCC Parks Dept.	Date: 9/9/16
Signature of Client/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/9/16
Signature of Driller/Agent:	Print/Type Name: Roger For Gregg Drilling	Date: 9/9/16
Signature of Consultant/Agent:	Print/Type Name: Roger Pierno for Todd Engineers	Date: 9/9/16

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 1 of 2

Date Issued: 9/9/2016	Expiration Date: 9/9/2017	District Permit No.: E20160909002
Client (if different from property owner): Santa Clara Valley Water District	**Property Owner**: County of Santa Clara Parks Department	Name of Business/Residence at Site: None, undeveloped park land
Client's Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Address: 298 Garden Hill Drive City, State, Zip Los Gatos,CA. 95032	Address of Site: Park land at end of Eden Park Pl City, State, Zip San Jose, CA
Telephone No.: (408) 265-2600	Telephone No.: 408.355.2200	Assessor's Parcel No. of Site: Book 678 Page 05 Parcel 060

Consulting Company Name: Todd Engineers, Chad Taylor	Drilling Company Name: Cascade Drilling	
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501	Address: 120 S 23rd St City, State, Zip Richmond, CA 94804	
Telephone No.: (510) 747-6920	Telephone No.: (510) 478-0858	C-57/C-61 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed	

In space at right, sketch location of proposed boring(s) in sufficient detail to identify location. In addition to distances to nearest street and intersection, show distances to any existing structures, landmarks, or topographic features.

How many borings will be installed on parcel? 8

☐ Proposed borings on District property/easement (See General Condition F, page 2.)
☐ Within 50 feet of the top of a creek bank or District facility

Proposed depth of boring(s):
☒ 45 to 150 feet
☐ 151 to 300 feet
☐ Over 300 feet

NOTE: No permit is required for borings under 45 feet deep.

Boring Type:
☐ Hollow stem
☐ Rotary
☒ CPT
☐ Hydropunch
☒ Other: Sonic

Boring Use:
☒ Geotechnical Investigation
☐ Environmental Investigation
☐ Material Emplacement
☐ Sensor Emplacement
☐ Other:

SITE PLAN
(Please draw accurately)

See Attached Figure 1. Up to 6 CPT holes by Gregg and 2 sonic holes by Cascade.

N

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ.

Signature of Property Owner/Agent:	Print/Type Name: Roger Pierno for SCC Parks Dept.	Date: 9/9/16
Signature of Client/Agent:	Print/Type Name: Roger Pierno, SCVWD	Date: 9/9/16
Signature of Driller/Agent:	Print/Type Name: Roger Pierno For Cascade Drilling	Date: 9/9/16
Signature of Consultant/Agent:	Print/Type Name: Roger Pierno for Todd Engineers	Date: 9/9/16

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

APPLICATION TO DRILL EXPLORATORY BORINGS

FC 285 (03-26-15)
Page 2 of 2

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

GENERAL CONDITIONS

A. **District** (telephone 408-630-2660) **must be notified a minimum of one working day before the exploratory boring is backfilled**. An authorized District representative must be on site to witness the sealing operation. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification under penalty of perjury that the seal was constructed in accordance with the District Well Standards.

B. This permit is valid only for the purpose specified herein. Boring destruction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

C. This permit is only valid for the Assessor's Parcel No. indicated on it.

D. This permit may be voided if it contains incorrect information.

E. Borings shall be sealed within 24 hours following completion of testing or sampling activities. Borings shall not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings shall be secured such that they do not endanger public health.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-630-2350, -2217, or -2253).

G. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

H. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

I. A current C-57 or C-61 Contractor's License is required for work associated with this permit.

J. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, boring destruction, and/or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statues regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where the work is being completed.

K. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

L. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

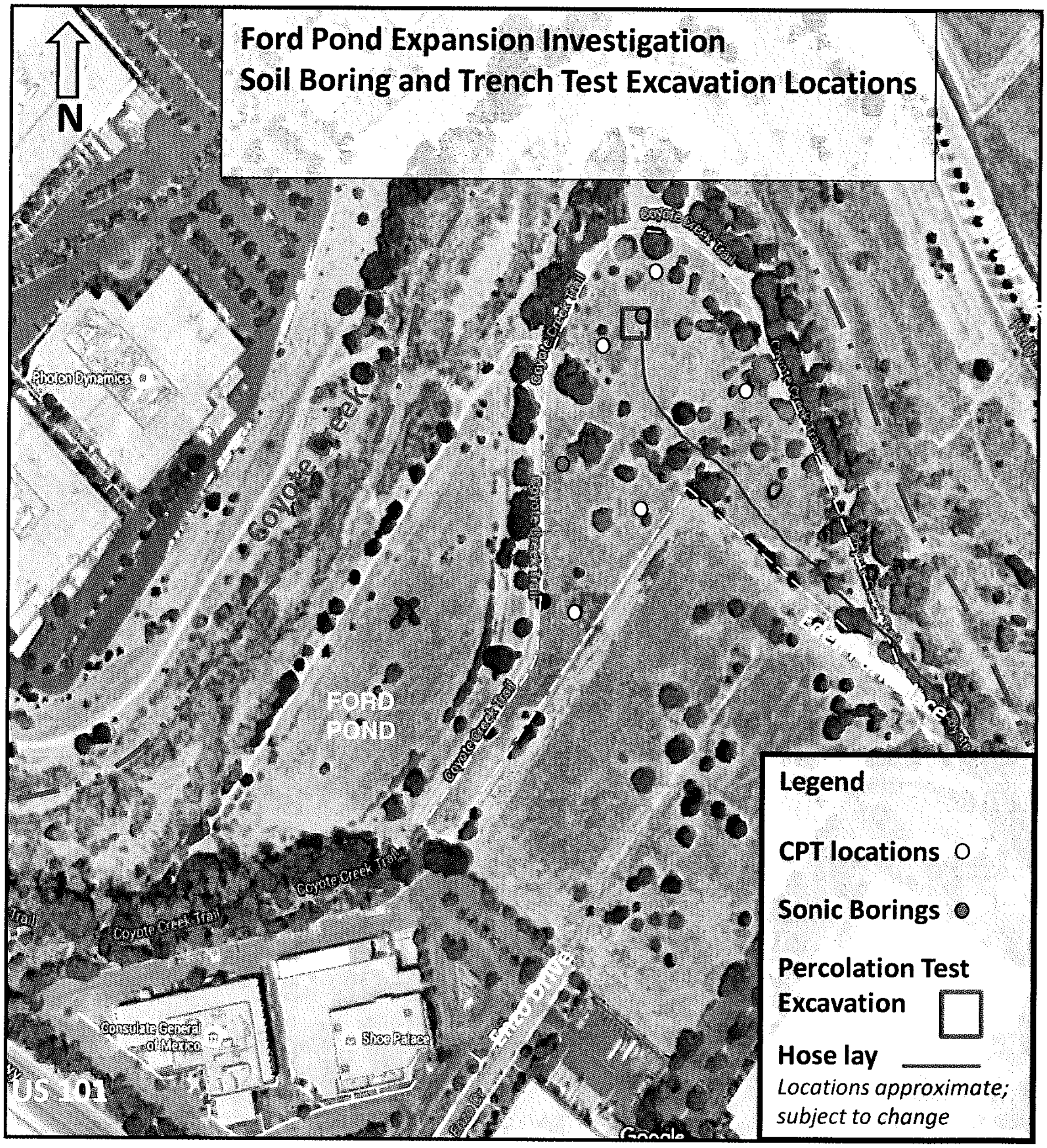
M. This permit shall be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

N. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

Permit Approved by:	Date: 9/9/2016

Please allow 10 working days to process this application.

Figure 1. Locations of borings at Ford Pond


Ford Pond Expansion Investigation
Soil Boring and Trench Test Excavation Locations
N
Photon Dynamics
Coyote Creek
Coyote Creek Trail
FORD POND
Consulate General of Mexico
Shoe Palace
Ford Drive
US 101
Google
Legend
CPT locations ○
Sonic Borings ●
Percolation Test Excavation ☐
Hose lay ___
Locations approximate; subject to change

Appendix C - Todd Groundwater Health and Safety Plan

TODD GROUNDWATER

Site Health and Safety Plan

IPR Exploratory Drilling

Santa Clara Valley Water District

January 2016

Table of Contents

Section 1: Site Health and Safety Plan Summary 1

Section 2: Introduction 2

Section 3: Key Health and Safety Personnel 3

Section 4: Site Description 3

Section 5: Planned Site Activities 3

Section 6: Health and Safety Hazard Assessment 4

- 6.1 Potential Physical Hazards 4
  - 6.1.1 Heavy Equipment 4
  - 6.1.2 Traffic 4
  - 6.1.3 Existing Utilities 4
  - 6.1.4 Excavation .... **Error! Bookmark not defined.**
  - 6.1.5 Tripping and Falling Hazards 4
  - 6.1.6 Misc. Hazards .... **Error! Bookmark not defined.**
  - 6.1.7 Heat Stress 4
  - 6.1.8 Cold Exposure 5
- 6.2 Potential Chemical Hazards 5
  - 6.2.1 Groundwater Samples 5
  - 6.2.2 Soil Samples .... **Error! Bookmark not defined.**

Section 7: Community Hazard Analysis 5

Section 8: Protective Actions 6

- 8.1 Personnel Protective Equipment 6
- 8.2 Work Zones 6
- 8.3 Monitoring 6
  - 8.3.1 Hazardous Substances 6

8.3.2 Oxygen Content 6
8.3.3 Noise 6
8.4 Site Control 7
8.5 Decontamination 7
8.6 Sanitation and Illumination 7

Section 9: Emergency Response Plan 7
9.1 Emergency Communications 7
9.1.1 Verbal Communication 7
9.1.2 Hand Signals 8
9.1.3 Vehicle Horn 8
9.1.4 Telephones 8
9.2 Emergency Protocol 8
9.3 Injury Response 9

Section 10: Signatures 9

List of Tables

1 Measures for Level C Decontamination
2 Emergency Information and Path to Closest Hospitals

Section 1: Site Health and Safety Plan Summary

Site Name: Los Gatos and Ford Road Ponds

Address: Campbell, CA

Site Telephone: (408) 265-2600 (Main SCVWD office)

Investigation Date: February 2016

Todd Groundwater Job No: 37809

Site Safety Officer (SSO): Amber Ritchie

Project Manager: Sally McCraven

Type of Investigation:

Sampling Investigation:

- ☐ Hand Auger
- ☒ Drilling
- ☐ Trenching
- ☒ Well Installation
- ☒ Soil Sampling
- ☒ Groundwater Sampling
- ☐ Other: ________________
- ☐ Site Walk-through
- ☐ Other: ________________

Site Remediation:

- ☐ Excavation
- ☐ Treatment System Installation
- ☐ UST Removal

Potential Hazards:

- ☐ Organics
- ☐ Inorganics
- ☐ Metals
- ☐ Solvents
- ☐ Pesticides
- ☐ Acids
- ☐ Bases
- ☐ Fire/Explosion
- ☐ Unexploded Ordnance
- ☒ Other: Traffic, heavy equipment, and uneven surfaces.

Personal Protective Equipment:

- ☐ Level C
- ☒ Level D

Section 2: Introduction

This Site Health and Safety Plan, developed in accordance with OSHA standards for hazardous waste operations (29 CFR 1910.120), and CalOSHA Standards (8 CCR 5192), establishes general health and safety protocols for Todd Groundwater personnel at two exploratory borehole drilling locations in Campbell, California. As needed, addenda containing activity-specific health and safety protocols will be prepared and attached to this Site Health and Safety Plan prior to the initiation of each additional field activity. The Site Health and Safety Plan and activity-specific addenda, as a minimum, contain the following information:

- Names of key personnel and alternates responsible for site health and safety and appointment of a Site Safety Officer.
- A health and safety risk evaluation for each site task and operation.
- Personal protective equipment to be used by employees for each site task and operations being conducted.
- Medical surveillance requirements.
- Frequency and types of personal monitoring and environmental sampling techniques and instrumentation to be used. Methods of maintenance and calibration of monitoring and sampling equipment to be used. (Air monitoring is not needed for the project and is not included herein).
- Site control measures.
- Decontamination procedures.
- Site's standard operating procedures.
- An Emergency Response Plan that addresses effective site response to emergencies.

For informational purposes only, this plan may be provided to subcontractors of Todd Groundwater involved in activities at the Site, interested regulatory agencies, or others. However, entities and personnel other than Todd Groundwater shall be solely responsible for their own health and safety and shall independently assess onsite conditions and develop their own health and safety protocols. Entities or personnel that anticipate using health and safety measures which are less stringent than Todd Groundwater' measures should immediately contact the Todd Groundwater Site Safety Officer (SSO).

A copy of the Site Health and Safety Plan along with any addenda containing activity specific health and safety information will be kept in a conspicuous location at all times while work is being conducted at the site.

Section 3: Key Health and Safety Personnel

The Todd Groundwater SSO is Amber Ritchie. In the absence of the SSO during field activities, a member of the field investigation team will be designated as the Todd Groundwater Field Site Safety Officer (FSSO). The SSO or FSSO is responsible for the following.

- Observing field activities for compliance with this Site Health and Safety Plan and any applicable addenda.
- Maintaining the onsite medical surveillance, if required, and emergency medical treatment programs, and assisting in onsite emergencies.
- Modifying health and safety protocols or terminating field work when unsafe work conditions exist.
- Familiarizing personnel with health and safety protocols.
- Observing that field personnel wear appropriate personal protective equipment.
- Recording data from direct reading instruments and evaluating potential hazards, if required.
- Monitoring decontamination procedures.
- Recording the occurrence of any site injury or illness.

If unsafe conditions are encountered, if illness or injury occurs, or if the level of protection needs to be changed, the SSO or FSSO will consult in a timely manner with the Project Manager, Sally McCraven.

Section 4: Site Description

The monitoring well program will be conducted at the Los Gatos Ponds site in Campbell, California and the Ford Road Ponds site in San Jose, CA. The Project involves the siting, drilling and lithologic logging of boreholes and installation of injection wells.

Section 5: Planned Site Activities

The monitoring well program will include drilling a borehole and installation of one groundwater monitoring well. The work will include the following:

(1) Using the sonic drilling method, borings will be drilled in the vicinity of each of the two IPR sites.

(2) During drilling, sample cores will be logged by an onsite geologist.

(3) Drilling work includes the drilling of borings for collection of vadose zone soil samples from three borings for dissolution sampling and the drilling of borings for collection of vadose zone soil samples from nine borings for hydraulic conductivity sampling.

Section 6: Health and Safety Hazard Assessment

6.1 Potential Physical Hazards

6.1.1 Heavy Equipment

Field personnel should be cognizant of potential physical hazards associated with use and work in the vicinity of heavy equipment and electrical equipment during field operations. Field personnel should be aware of the hazards associated with drilling rigs. These operations include overhead mast and cables, lifting and dragging, rotational equipment, welding, electrical equipment, and others. Field personnel should maintain a safe distance from operational drilling equipment at all times and should never engage in the use or operation of equipment. Appropriate precautions include the following:

- ANSI-approved hardhats, safety glasses or goggles, and steel-toe boots will be worn.
- Loose clothing that may catch in moving parts will not be worn.
- Hearing protection will be worn if a preliminary noise survey or past experience indicates that maximum noise levels will exceed 85 decibels at any time during site operations.

6.1.2 Traffic

Both drilling sites are located off of roadways. Appropriate signage will be placed and safety vests will be worn.

6.1.3 Existing Utilities

Prior to conducting drilling, a survey shall be conducted to identify overhead electrical hazards and underground utilities. Hand-augering to a depth of 10 feet will be conducted prior to sonic drilling.

6.1.4 Tripping and Falling Hazards

Other potential physical hazards include sloping instable soils, rocky soils, falling, and tripping.

6.1.5 Heat Stress

Drilling activities are scheduled for the summer and typical average high temperatures for Campbell for this time of year are in the mid 80s to low 90s. In the event of high temperatures, heat stress is an important consideration in planning and conducting site operations. Preventative measures should include the following:

- Water and/or commercial electrolyte solutions will be available and drinking of these fluids will be encouraged. The water will be kept reasonably cool and two gallons of water per person will be provided.

Personnel exhibiting symptoms of heat stress (nausea, cramps, dizziness, clammy skin) will be removed from the work area, cooled, fluids will be administered, and the personnel will be observed. Personnel exhibiting symptoms of heat stroke (hot dry skin, mental confusion, unconsciousness) will be immediately cooled and taken to the hospital.

6.1.6 Cold Exposure

Cold injury (e.g., frostbite and hypothermia) and impaired ability to work are dangers encountered at low temperatures and high wind-chill factors. Typical average low temperatures in San Jose in the winter months are in the upper 40s to low 50s but record lows below freezing have not been reported. In the event of unusually cold weather, field personnel should wear appropriate clothing, have access to readily available warm shelter, take carefully scheduled work and rest periods, and monitor the physical conditions of other workers.

6.2 Potential Chemical Hazards

There are no known chemical hazards at the drilling site. Direct contact with any chemicals that may be brought onsite by the drilling contractor is to be avoided.

6.2.1 Groundwater and Soil Samples

Chemicals of concern at concentrations high enough to pose a risk to human health are not anticipated at the proposed drilling location.

Section 7: Community Hazard Analysis

Generally, insignificant particulate and vapor emissions are generated during routine soil and groundwater sampling activities. Project staff and public exposure to chemicals at concentrations of concern is not expected.

Section 8: Protective Actions

8.1 Personnel Protective Equipment

Field personnel will wear equipment to protect against the potential physical and chemical hazards which have been identified herein and those that become apparent in the field. Level D protection will be required at a minimum for field activities at the site. Level D personal protective equipment to be used will include:

- ANSI-approved hard hat
- Chemical resistant gloves - disposable PVC or nitrile
- Boots, steel toe and shank
- Work clothes
- ANSI-approved safety glasses (for drilling and construction activities)
- Safety goggles or a face shield should be used when a foreseeable splash hazard exists
- Disposable hearing protection (for drilling and other high-noise activities)
- Safety Vest
- Sun screen protection

The level of protection employed may be upgraded, as deemed necessary by the SSO or FSSO.

If non-routine field activities are initiated, prior to starting such work, the level of protection will be specified in an activity-specific health and safety addenda.

8.2 Work Zones

Work zones for contaminated sites that require Level C protection or greater may include an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. Contamination is not expected to be encountered during this drilling program. The drilling will be conducted in a public space. The driller will establish barriers and warning markers to prevent private individual and vehicle encroachment near to the drilling site.

8.3 Monitoring

8.3.1 Hazardous Substances

The site activities will not involve hazardous substances; therefore air monitoring will not be required.

8.3.2 Oxygen Content

The site activities will not involve confined space entry, therefore oxygen monitoring will not be required.

8.3.3 Noise

Field personnel will employ appropriate hearing protection at all times.

8.4 Site Control

Markers or barriers will be placed to notify or prevent private individual or vehicle incursion into the work space in areas accessible to the public.

8.5 Decontamination

For activities requiring Level D protection and modified Level C protection without established work zones, it is unlikely that major decontamination will be necessary. At the conclusion of each day, disposable gloves and coveralls, if used, will be removed and disposed of in onsite containers.

If full Level C protection is required, minimum decontamination procedures associated with Level C protection will be followed and established within the Contamination Reduction Zone. These procedures are presented in Table 1.

8.6 Sanitation and Illumination

The drilling site generally does not have restroom facilities available and onsite personnel will need to locate nearby public restrooms. No eating, drinking, or smoking is allowed in work area.

Activities will take place during daylight hours. Natural illumination (approximately 50 to 200 foot candles) will be sufficient to meet the 5 foot candle requirement for general site areas during daylight hours

Section 9: Emergency Response Plan

Hazard recognition is an essential part of the Emergency Response Plan. Initiation of the contingency plan relies on the employee's ability to recognize an emergency or potential for an emergency. The following is a list of events which will immediately initiate emergency procedures:

- Explosion
- Fire
- Release of organic vapors or particulate above the action levels
- Personal injury
- Failure or expected failure of runon/runoff control measures
- Natural occurrences (i.e., lightning, tornado, high winds, etc.)
- Spills

9.1 Emergency Communications

Emergency communications will consist of four methods.

9.1.1 Verbal Communication

Verbal communication will be the primary method of emergency communication between onsite personnel, distance permitting.

9.1.2 Hand Signals

- Hands clasped on wrists will indicate personnel to stop work.
- Hands on throat indicate inability to breathe.
- Thumbs up indicates OK.
- Thumbs down indicates not OK.

9.1.3 Vehicle Horn

Vehicle horns may be used as a notification system in the following manner:

One long blast:	Stop work and leave work area.
Three short blasts:	All clear, resume work.

9.1.4 Telephones

Telephones are used for routine communication and to notify offsite agencies of incidents and request assistance. Emergency telephone numbers are given in Table 2.

9.2 Emergency Protocol

All personnel will have a thorough understanding of the Emergency Response Plan before starting work. It will be reviewed periodically to keep it current with new or changing site conditions or information When an event recognized as an emergency occurs, the vehicle horn system will be used to notify personnel. As soon as the alarm system is activated, the SSO or FSSO will be notified.

The SSO or FSSO will take into account the following information:

- Nature of emergency
- Wind direction
- Location of personnel
- Monitoring results
- Emergency equipment available
- Offsite population

Based on this information, the SSO or FSSO will direct appropriate emergency action and agency notification. After the emergency has been controlled and the work area is considered safe, the SSO or FSSO will direct remedial action to restore the site to full operating condition.

The SSO or FSSO will investigate the nature and cause of the incident so that work procedures can be modified to minimize the likelihood of the incident's recurrence. All incidents must be reported in a timely, appropriate manner. An incident is any unplanned event resulting in injury, damage, loss of assets, adverse publicity, or which requires notification of a regulatory agency, regardless of severity. All Todd Groundwater personnel should report an incident to the SSO or FSSO. The SSO and FSSO will report to the project manager.

9.3 Injury Response

In the event of personal injury, first-aid personnel must decide if the victim's injuries are potentially the type that would be aggravated by movement. If there is any doubt, or the victim is unconscious and cannot respond, no attempt should be made to move the victim. Only offsite paramedics may move such victims. Routine and emergency communication will be provided by the site telephone.

Section 10: Signatures

Site Safety Officer: ______________________________ Date: ______________

Project Manager: ______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

______________________________ Date: ______________

Tables

Table 1: Measures for Level C Decontamination

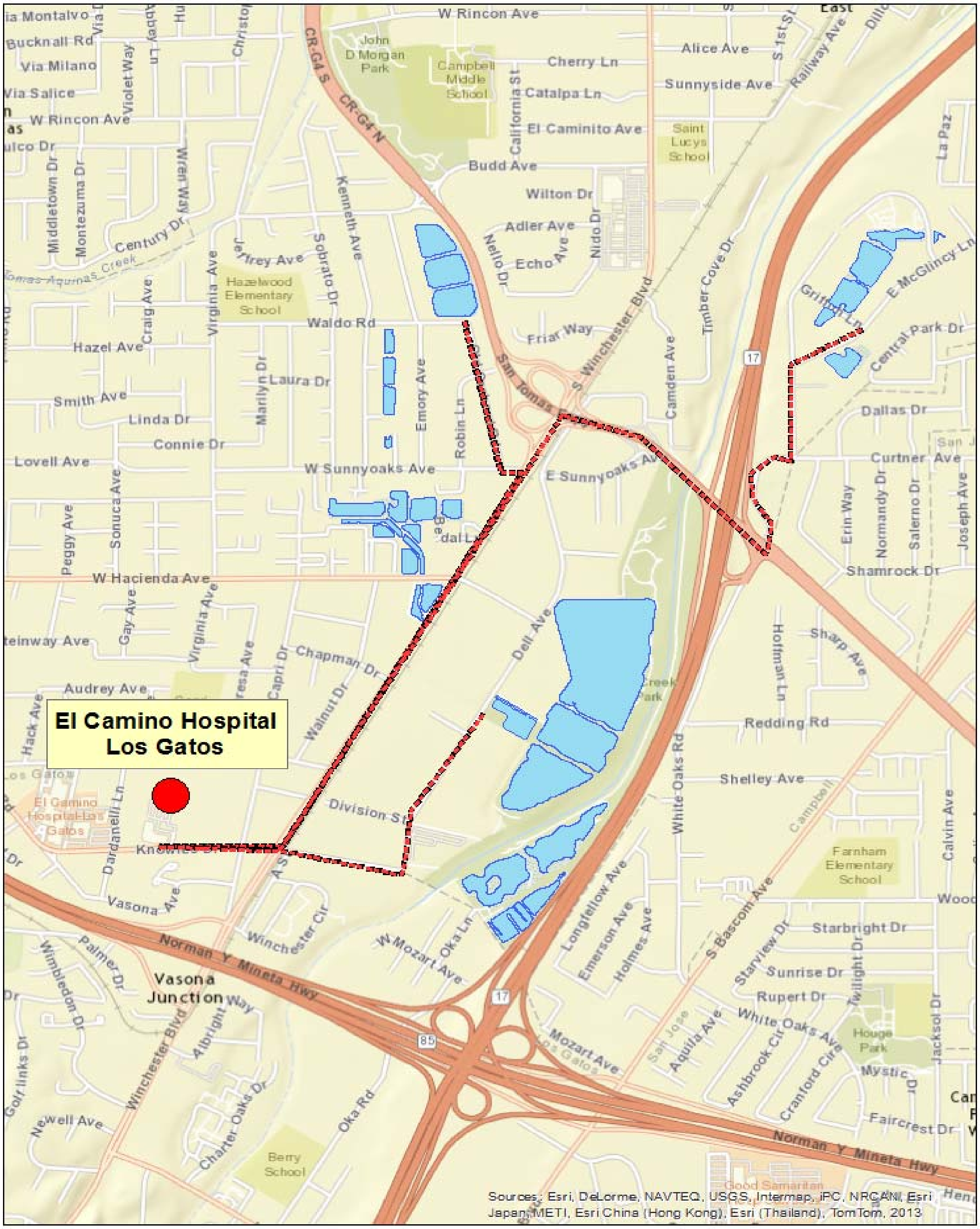
Station	Description
1	**Equipment Drop** Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
2	**Outer Garment, Boots, and Gloves Wash and Rinse** Scrub outer boots, outer gloves and splash suit with decon solution or detergent water. Rinse off using copious amounts of water.
3	**Outer Boot and Glove Removal** Remove outer boots and gloves. Deposit in container with plastic liner.
4	**Canister or Mask Change** If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
5	**Boot, Gloves and Outer Garment Removal** Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
6	**Face Piece Removal** Facepiece is removed. Avoid touching face with fingers. Facepiece is deposited on plastic sheet.
7	**Field Wash** Hands and face are thoroughly washed. Shower as soon as possible.

Table 2a: Closest Hospital to Work Site

Emergency Telephone Numbers

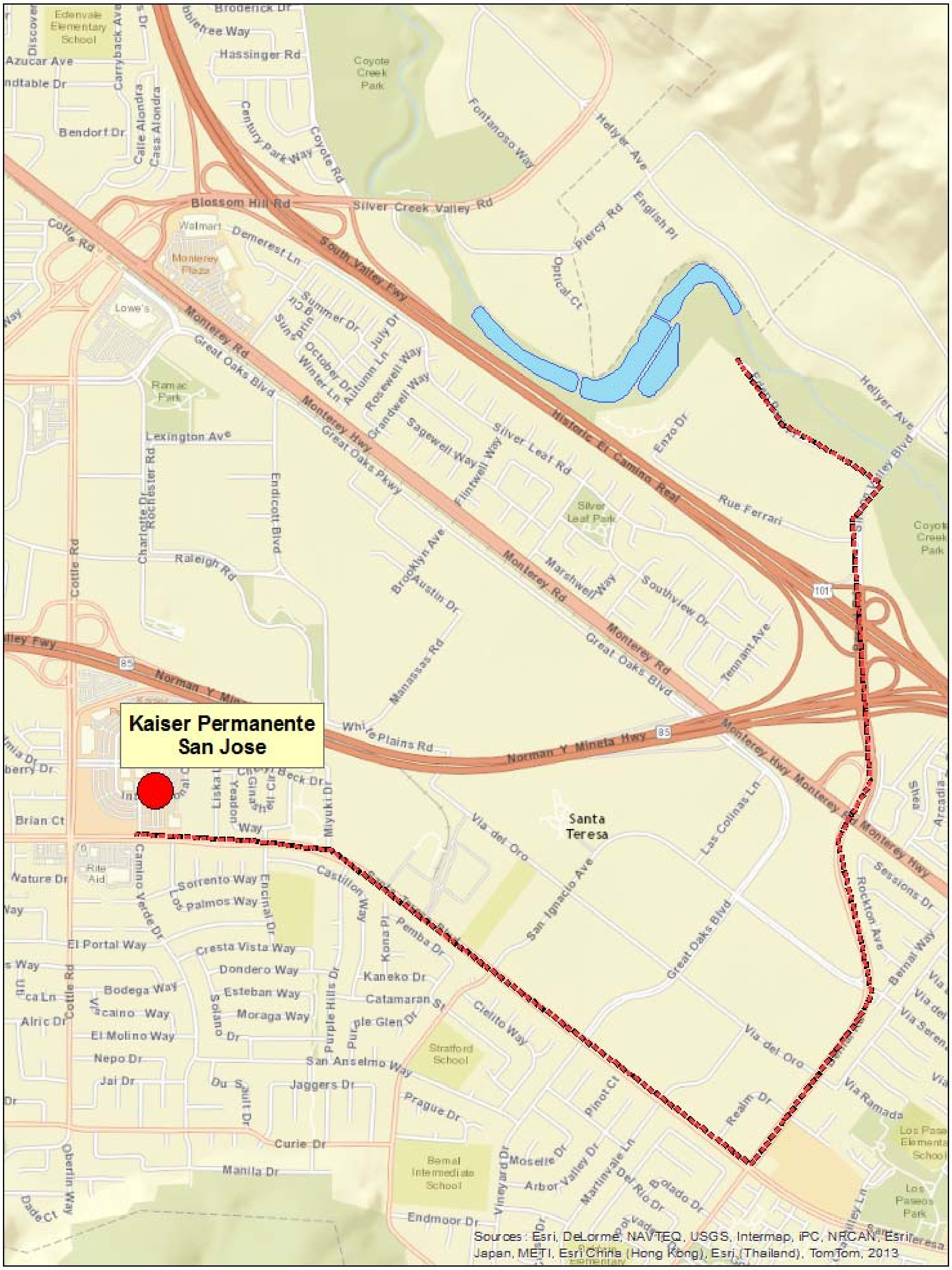
In Emergency	911
Site Telephone	(408) 265-2600 (SCVWD Main Office)
Hospital:	815 Pollard Rd; Los Gatos, CA
A map from the drill site to the hospital is shown below. The nearest hospital from the Los Gatos Ponds is the El Camino Hospital in Los Gatos. The nearest hospital from the Ford Road Ponds is Kaiser Permanente San Jose.	
Ambulance	911
Police	911
Fire Department	911
Todd Groundwater:	
Project Manager – Sally McCraven	
Site Safety Officer – Amber Ritchie	(864) 633-9712

Table 2a: Closest Hospital to Work Site



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Table 2a: Closest Hospital to Work Site



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Appendix D - Gregg Drilling CPT Report

GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

September 19, 2016

Todd Groundwater
Attn: Chad Taylor

Subject: CPT Site Investigation
Ford Road Ponds
San Jose, California
GREGG Project Number: 16-635SH

Dear Mr. Taylor:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	☒
2	Pore Pressure Dissipation Tests	(PPD)	☒
3	Seismic Cone Penetration Tests	(SCPTU)	☐
4	UVOST Laser Induced Fluorescence	(UVOST)	☐
5	Groundwater Sampling	(GWS)	☐
6	Soil Sampling	(SS)	☐
7	Vapor Sampling	(VS)	☐
8	Pressuremeter Testing	(PMT)	☐
9	Vane Shear Testing	(VST)	☐
10	Dilatometer Testing	(DMT)	☐

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,
GREGG Drilling & Testing, Inc.

Peter Robertson
Technical Director, Gregg Drilling & Testing, Inc.

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (feet)	Depth of Groundwater Samples (feet)	Depth of Soil Samples (feet)	Depth of Pore Pressure Dissipation Tests (feet)
CPT-01	9/15/16	73	-	-	73.7
CPT-02	9/15/16	50	-	-	43.6
CPT-03	9/15/16	50	-	-	47.4
CPT-04	9/15/16	50	-	-	50.4
CPT-05	9/15/16	100	-	-	-

Bibliography

Lunne, T., Robertson, P.K. and Powell, J.J.M., “Cone Penetration Testing in Geotechnical Practice” E & FN Spon. ISBN 0 419 23750, 1997

Roberston, P.K., “Soil Classification using the Cone Penetration Test”, Canadian Geotechnical Journal, Vol. 27, 1990 pp. 151-158.

Mayne, P.W., “NHI (2002) Manual on Subsurface Investigations: Geotechnical Site Characterization”, available through www.ce.gatech.edu/~geosys/Faculty/Mayne/papers/index.html, Section 5.3, pp. 107-112.

Robertson, P.K., R.G. Campanella, D. Gillespie and A. Rice, “Seismic CPT to Measure In-Situ Shear Wave Velocity”, Journal of Geotechnical Engineering ASCE, Vol. 112, No. 8, 1986 pp. 791-803.

Robertson, P.K., Sully, J., Woeller, D.J., Lunne, T., Powell, J.J.M., and Gillespie, D.J., "Guidelines for Estimating Consolidation Parameters in Soils from Piezocone Tests", Canadian Geotechnical Journal, Vol. 29, No. 4, August 1992, pp. 539-550.

Robertson, P.K., T. Lunne and J.J.M. Powell, “Geo-Environmental Application of Penetration Testing”, Geotechnical Site Characterization, Robertson & Mayne (editors), 1998 Balkema, Rotterdam, ISBN 90 5410 939 4 pp 35-47.

Campanella, R.G. and I. Weemees, “Development and Use of An Electrical Resistivity Cone for Groundwater Contamination Studies”, Canadian Geotechnical Journal, Vol. 27 No. 5, 1990 pp. 557-567.

DeGroot, D.J. and A.J. Lutenegger, “Reliability of Soil Gas Sampling and Characterization Techniques”, International Site Characterization Conference - Atlanta, 1998.

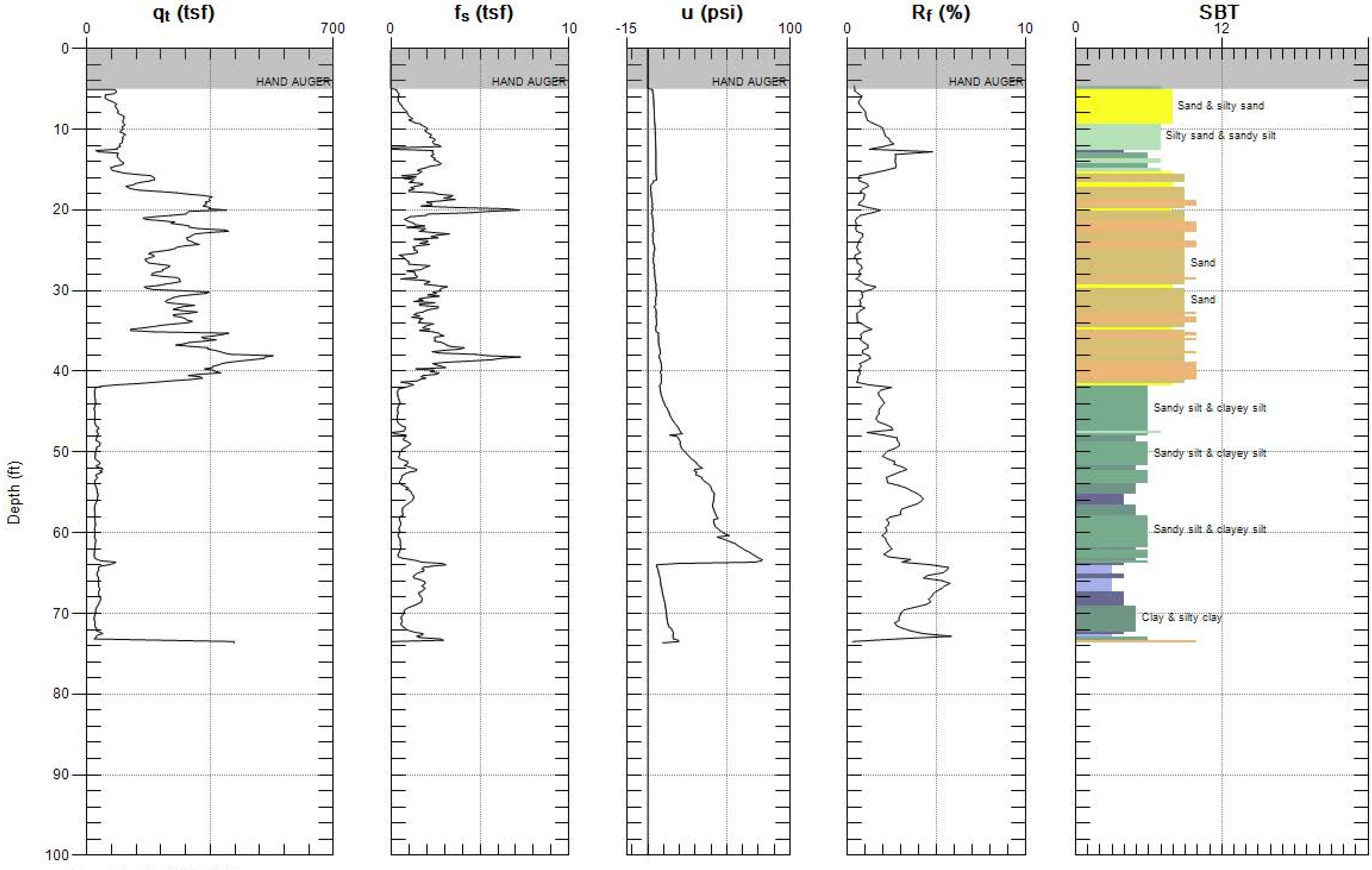
Woeller, D.J., P.K. Robertson, T.J. Boyd and Dave Thomas, “Detection of Polyaromatic Hydrocarbon Contaminants Using the UVIF-CPT”, 53rd Canadian Geotechnical Conference Montreal, QC October pp. 733-739, 2000.

Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, “Field Comparison of Analytical Results from Discrete-Depth Groundwater Samplers” BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-01
Engineer: C.TAYLOR
Date: 9/15/16 07:15



Max. Depth: 73.655 (ft)
Avg. Interval: 0.328 (ft)

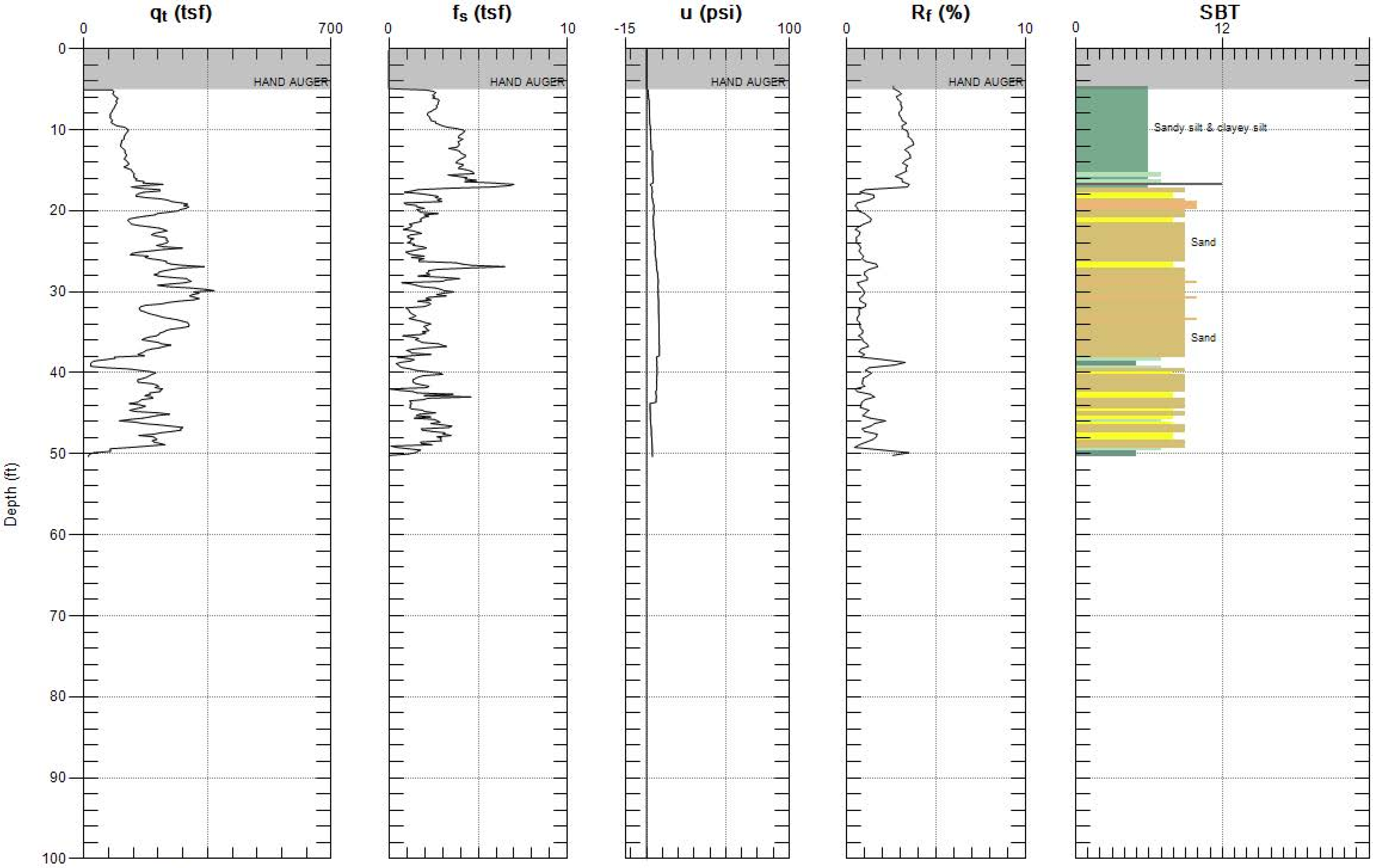
SBT: Soil Behavior Type (Robertson 1990)

GREGG

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-02

Engineer: C.TAYLOR
Date: 9/15/16 08:35



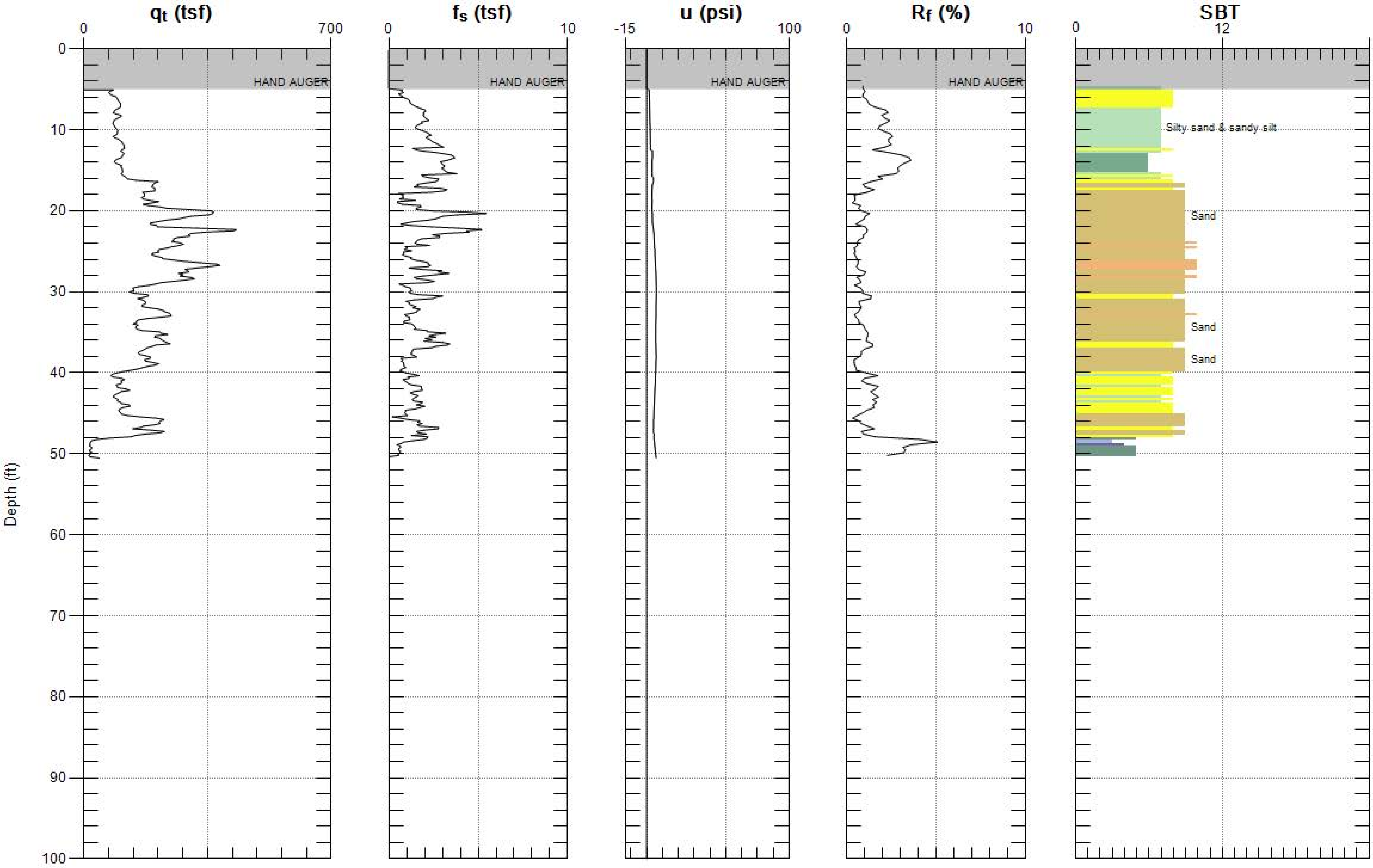
Max. Depth: 50.361 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-03

Engineer: C.TAYLOR
Date: 9/15/16 09:48



Max. Depth: 50.525 (ft)
Avg. Interval: 0.328 (ft)

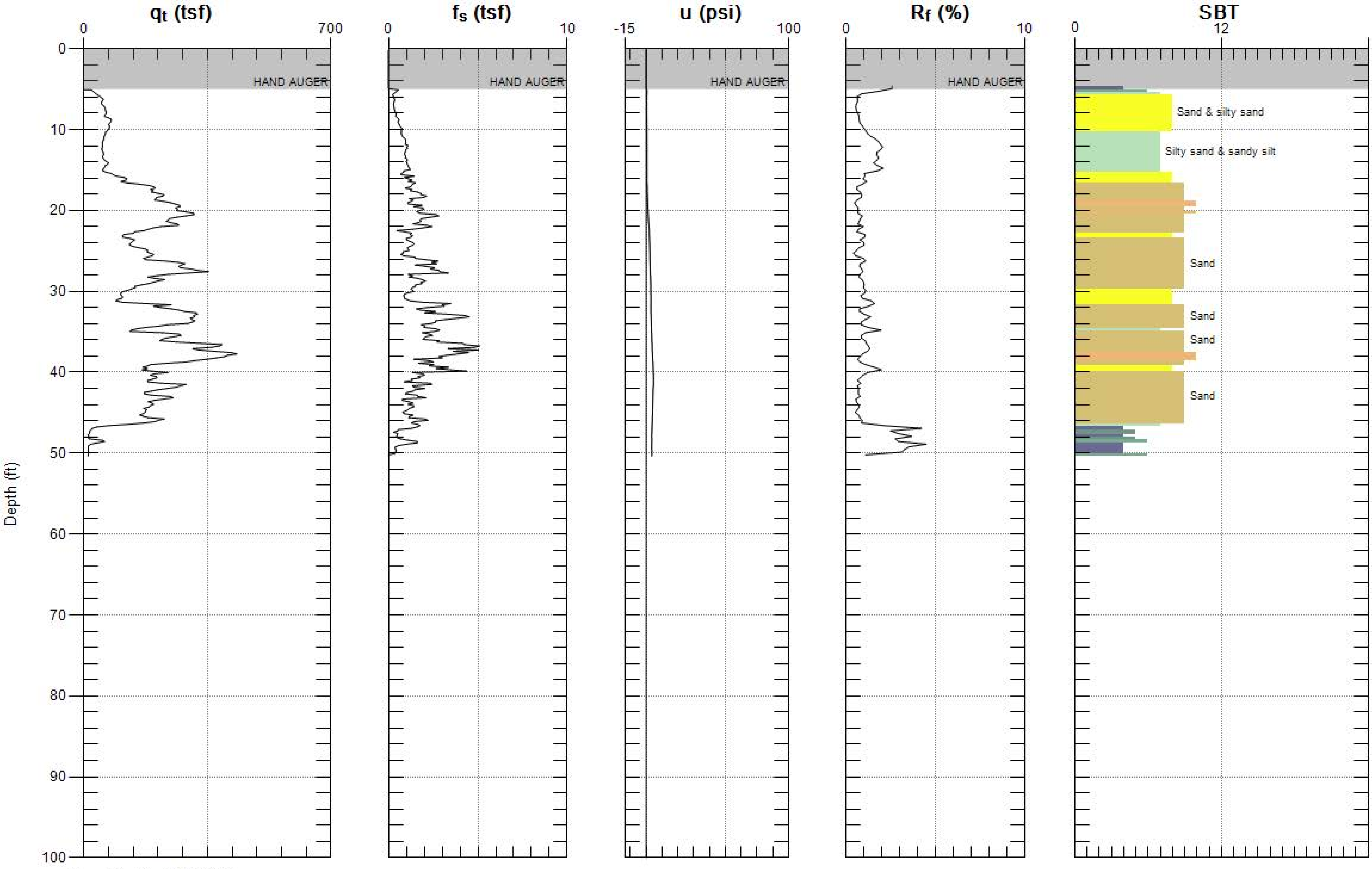
SBT: Soil Behavior Type (Robertson 1990)

GREGG

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-04

Engineer: C.TAYLOR
Date: 9/15/16 12:06



Max. Depth: 50.361 (ft)
Avg. Interval: 0.328 (ft)

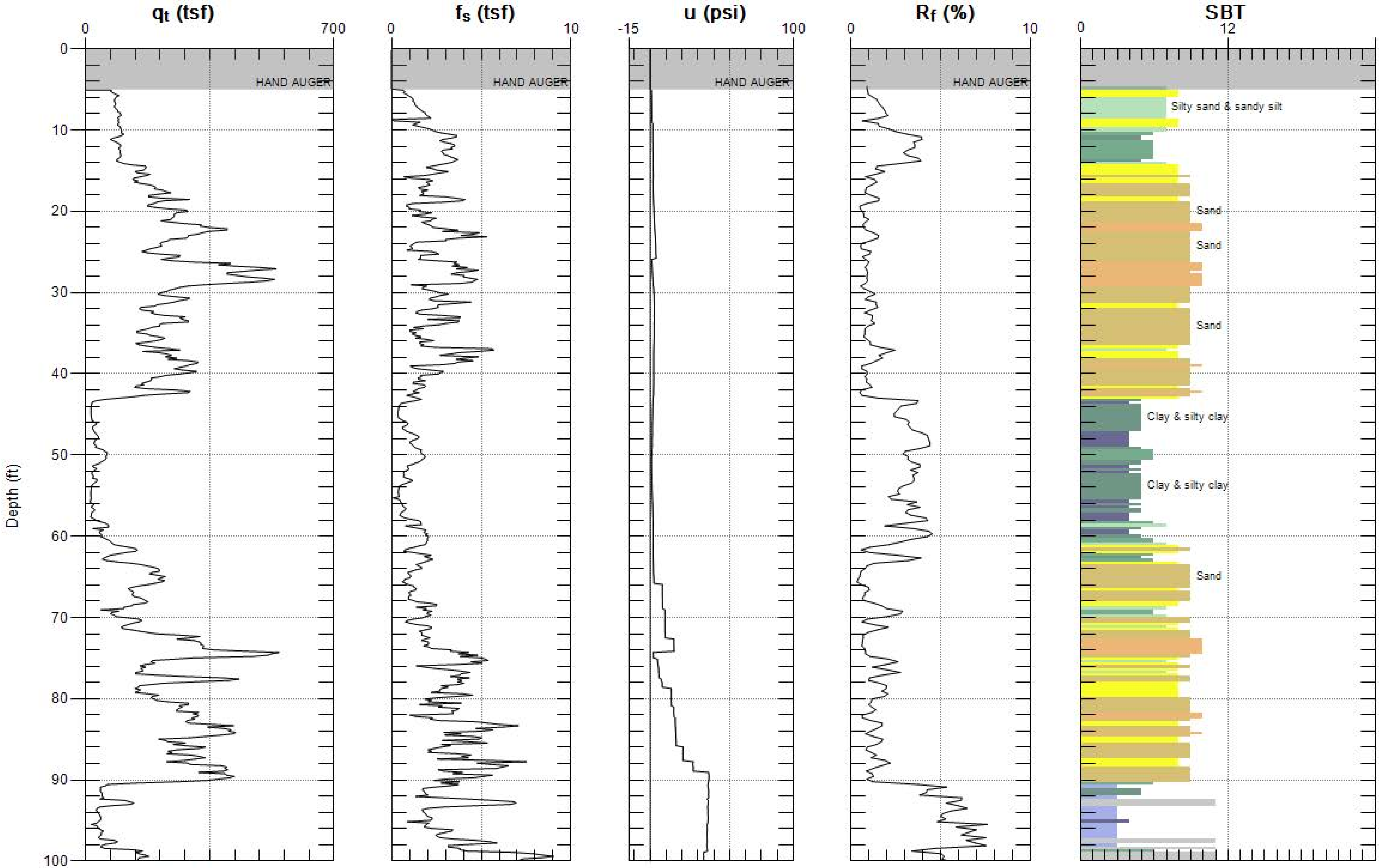
SBT: Soil Behavior Type (Robertson 1990)

GREGG

TODD GROUNDWATER

Site: FORD ROAD PONDS
Sounding: CPT-05

Engineer: C.TAYLOR
Date: 9/15/16 01:13



Max. Depth: 100.558 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Appendix E - Vadose Zone Sonic Boring Logs

Date: 9/26/16
Project Name/Number: SCVWD-IPR/37809
Site Name: Ford Road Ponds
Boring No.: **Sonic-1**
Drilling Company: Cascade Drilling, L.P.
Driller: Ryan Miller
Logged By: W.E. Motzer, TODD Groundwater

Depth Below Ground Surface (ft bgs)	**USCS Soil Classification**	**USCS Soil Description**	**Dissolution Sample (ft bgs)**	**Hydraulic Sample (ft bgs)**
1.0-17.0	**SM**	Brown (7.5 YR 4/2) sand: silty to brown (7.5 YR 5/4) sandy silt; dry		
			10.0	**12.5-13.0**
			15.0	
17.0-22.0	**GM**	Brown (7.5 YR 5/4) gravel (well rounded) with silty sand; dry	**20.0**	18.0-18.5
23.0-35.0		Brown(7.5 YR 4/3) gravel (well rounded to subangular) with silty sand; dry	25.0	**24.0-24.5**
			30.0	**28.0-28.5**
				32.5-33.5
35.0-35.5	**SM**	Dark Brown (7.5 YR 3/3) silt to clayey silt; moist.		38.0-38.5
35.5-40.0		Brown (7.5 YR 4/4) sand: silty with gravel; dry.		
~42.0		Groundwater: EOH		

Notes:
EOH = End of Hole
ft bgs = feet below ground surface
Soil colors by Munsel Color Chart
Only those dissolution samples in bold font will be analyzed

Date: 9/26/16
Project Name/Number: SCVWD-IPR/37809
Site Name: Ford Road Ponds
Boring No.: **Sonic-2**
Drilling Company: Cascade Drilling, L.P.
Driller: Ryan Miller/Jonathan Vasquez
Logged By: W.E. Motzer, TODD Groundwater

Depth Below Ground Surface (ft bgs)	USCS Soil Classification	USCS Soil Description	Dissolution Sample (ft bgs)	Hydraulic Sample (ft bgs)
2.0-12.0	**SM**	Brown (7.5 YR 3/2) silt: sandy; dry.		
5.0-8.0		Brown (7.5 YR 3/3) silt: sandy; dry.		**8.0-9.0**
8.0-12.0		Brown (7.5 YR 4/3) silty sand; dry.	**10.0**	
13.0-17.0		Strong Brown (7.5 YR 4/6) silty sand with minor gravel; dry.	15.0	13.0-13.5
17.0-18.0		Strong Brown (7.5 YR 4/6) silty sand with gravel; dry.	20.0	**18.0-18.5**
18.0-22.0		Light Brown (7.5 YR 6/4) silty sand with gravel; dry.		
23.0-27.0	**GP-GM**	Brown (7.5 YR 4/3) gravel - sand mix; dry, moist at 27.0 ft bgs.	**25.0**	**23.0-23.5**
28.0-32.0	**GM**	Light Brown (7.5 YR 6/4) gravel - sand mix; dry.	30.0	**27.5-28.0**
32.0-37.0	**GP**	Brown (7.5 YR 4/3) gravel: sandy to silty mix; dry.	**35.0**	33.0-33.5
38.0		Groundwater; EOH		

Notes:
EOH = End of Hole
ft bgs = feet below ground surface
Soil colors by Munsel Color Chart
Only those dissolution samples in bold font will be analyzed

Date: 9/27/16 - 9/28/16
Project Name/Number: SCVWD-IPR/37809
Site Name: Ford Road Ponds
Boring No.: **Sonic-3**
Drilling Company: Cascade Drilling, L.P.
Driller: Jonathan Vasquez
Logged By: W.E. Motzer, TODD Groundwater

Depth Below Ground Surface (ft bgs)	USCS Soil Classification	USCS Soil Description	Dissolution Sample (ft bgs)	Hydraulic Sample (ft bgs)
2.0-7.0	**GP**	Strong Brown ((7.5 YR 3/1) gravel with sand; moist.	5.0	7.0-7.5
8.0-14.0		Dark Brown (7.5 YR 3/2) gravel: sandy to silty; moist.	**10.0**	**14.0-14.5**
14.0-20.0		Brown (7.5 YR 4/4) gravel: silty to sandy; dry.	**15.0**	**17.5-18.0**
~20.0	**CL**	Strong Brown (7.5 YR 5/4) clay, silty to sandy		
		Groundwater: EOH		

Notes:
EOH = End of Hole
ft bgs = feet below ground surface
Soil colors by Munsel Color Chart
Only those dissolution samples in bold font will be analyzed

Date: 9/28/16 -9/29/16
Project Name/Number: SCVWD-IPR/37809
Site Name: Page Ponds
Boring No.: **Sonic-4**
Drilling Company: Cascade Drilling, L.P.
Driller: Jonathan Vasquez
Logged By: W.E. Motzer, TODD Groundwater

Depth Below Ground Surface (ft bgs)	USCS Soil Classification	USCS Soil Description	Dissolution Sample (ft bgs)	Hydraulic Sample (ft bgs)*
0.0-12.0	**GP**	Top of levee - levee fill: reddish-brown (5 YR 4/3) gravel and sand mix; dry.		
12.0-17.0	**GM**	Levee fill- mix with native soil: dark reddish gray (5YR 4/2) gravel/sand mix with minor silt.	**17.0**	
17.0-27.0		Reddish-brown (5 YR 4/3) gravel: silty to sandy.	**23.0**	
27.0 - 31.0	**CL**	Dark reddish brown (5 YR 3/4) clay: silty; moist.		
31.0-33.0		Dark reddish brown (5 YR 3/3) clay: silty to clayey gravel; moist.		
33.0-37.0	**GM**	Yellowish-red (5 YR 4/6) gravel: silty to sandy.		
37.0-42.0	**SP**	Strong Brown (7.5 YR 5/6) sand: siltywith some gravel; dry.		
43.0-47.0	**CL**	Dark brown (7.5 3/3) clay: silty; moist.		
47.0-62.0		Dark brown (7.5 3/3) clay: silty to sandy clay; moist to wet.	**50.0**	
63.0-71.0	**GM**	Strong Brown (7.5 YR 5/8) gravel: silty to sandy; dry to moist.	**65.0**	
71.0-74.0		Light Brown (7.5 YR 6/4) gravel: silty to sandy.		
75.0-87.0	**GC**	Brown (7.5 YR 4/3) gravel: silty with minor clay.	**85.0**	
88.0-107.0	**GM**	Dark brown(7.5 YR 4/4) gravel: silty to sandy with minor clay; dry.	**95.0**	
108.0-115.0		Brown (7.5 YR 4/3) gravel: silty to sandy; dry, moist at ~114 ft bgs.	**110.0**	
116.0-132. 0		Brown (7.5 YR 4/3) gravel: silty to sandy; dry.	**125.0**	
133.0		4-inch caliche coated gravel		
133.0-135.0		Brown (7.5 YR 4/3) gravel: silty to sandy.		
135.0-137.0		Strong Brown (7.5 YR 4/6) gravel: sandy; dry.		
138.0-143.0	**CL**	Strong Brown (7.5 YR 5/6) clay: silty; moist.		
142.0-147.0	**GM**	Brown(7.5 YR 4/3) gravel: sandy; dry.		
148.0-163.0		Brown (7.5 YR 4/4) gravel: silty to sandy; moist to dry. ~ 3.0 inch caliche-coated gravel at 162.5 ft bgs	**155.0**	
165.0-167.0		Brown (7.5 YR 4/4) gravel: silty to sandy, wet. Groundwater at ~ 167.0 ft bgs; EOH		

Notes:
EOH = End of Hole
ft bgs = feet below ground surface
Soil colors by Munsel Color Chart
Only those dissolution samples in bold font will be analyzed
* Hydraulic samples not collected or to be analyzed for Page Ponds (Sonic-4)

Date: 9/29/16 - 9/30/16
Project Name/Number: SCVWD-IPR/37809
Site Name: McGlincey Ponds
Boring No.: **Sonic-5**
Drilling Company: Cascade Drilling, L.P.
Driller: Jonathan Vasquez
Logged By: W.E. Motzer, TODD Groundwater

Depth Below Ground Surface (ft bgs)	USCS Soil Classification	USCS Soil Description	Dissolution Sample (ft bgs)	Hydraulic Sample (ft bgs)*
0.0-1.0	**GM**	Drilling began at bottom of Pond 5: "top soil" with grass and grass roots: Dark brown (7.5 YR 3/2) gravel: sandy to silty; dry.		
1.0-13.0	**SM**	Brown (7.5 YR 4/4) silty sand with gravel; moist.	**9.0**	
14.0-~20	**GC**	Strong brown (7.5 YR 5/6) gravel: silty to sandy clay mix.		
21.0-27.0	**GM**	Brown (7.5 YR 3/2) gravel: silty to sandy; moist.	**25.0**	
28.0-35.0		Dark Brown (7.5 YR 4/3) gravel: silty to sandy; wet.		
35.0-38.0	**GC**	Strong Brown (7.5 YR 4/6) gravel: silty to clayey.		
38.0-43.0	**GM**	Brown (7.5 YR 4/4) gravel: silty to sandy gravel; wet.		
44.0-56.0	**GC**	Brown (7.5 YR 4/4) clay: silty to sandy with minor gravel.	**50.0**	
57.0-63.0	**GM**	Strong Brown (7.5 YR 4/6) gravel: silty to sandy; dry.		
64.0-77.0		Brown (7.5 YR 4/4) gravel: silty to sandy; dry.	**65.0**	
78.0-87.0	**CL-CL/SC**	Brown (7.5 YR 4/4) clay: silty to sandy with minor gravel; moist.	**80.0**	
88.0-91.0		Brown (7.5 YR 4/4) clay: silty to sandy; more silty at ~ 90 ft bgs; dry.		
92.0-97.0	**GC**	Brown(7.5 YR 4/3) gravel: silty to sandy; dry.		
98.0-107.0	**SC**	Strong Brown(7.5 yr 4/6) clayey sand and silt; moist.	**100.0**	
108.0-123.0	**GC**	Dark brown (7.5 YR 3/4) gravel: silty to sandy with minor clay; moist, dry at 116.0-117.0; dry again ~123.0 ft bgs.		
124.0-127.0	**GM**	Brown (7.5 YR 5/4) gravel: sandy to silty with minor clay; moist.	**125.0**	
128.0-134.0	**SC**	Brown (7.5 YR 5/4) sand: with silty clay and gravel; moist.		
134.0-137.0	**GM**	Brown (7.5 YR 5/4) gravel: silty to sandy with minor clay; dry.		
138.0-143.0	**GC**	Brown (7.5 YR 4/4) gravel: clayey and silty to sandy; moist to 143.0 ft bgs, dry at 145 ft bgs.	**140.0**	
148.0-153.0	**SC**	Brown (7.5 YR 4/3): sand and clayey silt; dry.		
154.0-165.0	**GM**	Brown (7.5 YR 4/3) gravel: silty to sandy. Caliche-coated gravel at 164.5; dry.	**160.0**	
165.0-170.0		Brown (7.5 YR 4/3) gravel: silty to sandy; wet. Groundwater at ~ 169.0-170.0 ft bgs. EOH		

Notes:
EOH = End of Hole
ft bgs = feet below ground surface
Soil colors by Munsel Color Chart
Only those dissolution samples in bold font will be analyzed
* Hydraulic samples not collected or analyzed for McGlincey Ponds (Sonic-5)

Appendix F - Cooper Testing Laboratory Report

937 Commercial St.
Palo Alto, CA 94303
TEL 650-213-8436
FAX 650-213-8437

Cooper Testing Labs, Inc.
Test Request Sheet

10/13

(email: requests@coopertestinglabs.com) (home page: www.coopertestinglabs.com)

CTL#	148-0110	P.O. #:	
Your Company:	**TODD Groundwater**	Date In:	
Results To:	Edwin Lin	Email Address:	elin@toddgroundwater.com

Priority (Circle One): [✓ Standard] Rush (+50%) Superrush (+100%)

Billing Address:	2490 Mariner Square Loop		
City:	Alameda		
State:	CA	Zip:	94501-1080

Project Name: SCVWD-IPR

Project No.: 37809

Boring	Depth ft	Test	Instructions
Sonic-1	12.0-12.5	13 and 33	Brn Sa SILT Slightly plastic
Sonic-1	23.5-24.0	13 and 33	Damaged Tube Unable to extrude *
Sonic-1	27.5-28.0	13 and 33	Brn GRAV. w/ Silty Sa (Very Dry)
Sonic-2	8.0-8.5	13 and 33	Brn S SILT, w/ rootholes
Sonic-2	17.5-18.0	13 and 33	Brn SILT w/ Sa / Sa SILT
Sonic-2	23.5-24.0	13 and 33	GRAV. DIST, unstable
Sonic-2	27.0-27.5	13 and 33	Brn Silty GRAV w/ Sa
Sonic-3	7.0-7.5	13 and 33	Drk Brn Si SA Change to Grayish-Brn
Sonic-3	14.0-14.5	13 and 33	Drk Brn Si SA slightly plast. Sa SILT
Sonic-3	17.5-18.0	13 and 33	DIST. Grav. w/ g

* 23.5'-24' Dist. w/ grav. Sample unable to extrude

Test	Test #	Price ($)	Quantity
Moisture (MC)	1	19	
MD, 2-2.5" diameter	2	23	
MD 3" diameter	3	34	
PI Dry (CTL default)	4	163	
PI Wet Prep	5	233	
Sieve (SA)-3/4" / +3/4"	6	109/176	
Sieve + Hydrometer	7	182	
-#200Wash	8	79	
Specific Gravity(-#4)	9	89/110	
Specific Gravity(+#4)	10	157	
% Organics	11	89	
Total Porosity	12	109	
Effective Porosity	13	235	10
UC-Soil	14	73	
UC-Soil-Cement-Precast	15	204	
UC-Lime Precast	16	170	
Direct Shear - CU	17	94/point	
Direct Shear - CD	18	209/point	
TX-UU	19	136	
TX-ICU	20	230/point	
TX-ICU- Staged	21	460/2-3 pts.	
TX-ICU-PP	22	470/point	
TX-ICU-PP- Staged	23	940/2-3 pts.	
Torsional peak or res	24	306/pt	
Torsional peak and res	25	571/pt	
Incremental - Consol	26	376	
SS/+Expansion-Pressure	27	286	
Shrink Swell (SS)	28	157	
Expansion Pressure	29	157	
Expansion Index, ASTM	30	392	
Expansion Index, UBC	31	418	
Collapse	32	167	
Permeability 2-3" dia.	33	318	10
6" dia. Perm on rock <3/4"	34	418	
12" dia. Perm on rock <2"	35	836	
Modified Proctor 4"/ 6"	36	260/311	
Max Index Density .1 / .5ft³	37	240/362	
Min. Index Density .1 / .5ft³	38	119/240	
R-Value	39	250	
R-value-batch/admix	40	282/307	
CBR	41	825	
Sand Equivalent (SE)	42	109	
Class II AB Spec	43	750	
Durability Index, Fi / Co	44	130/156	
LA Abrasion	45	240	
Sulfate Soundness	46	156/frac.	
Rapid Chlor. Perm	47	527	
UC Lime (Cal 373)	48	935	
Remolding	49	61	
Junior Technician/hr	50	109	
Senior Technician/hr	51	136	
Principal/hr	52	167	
Sample Pick-up	53	83	

See our fee schedule for a complete list of tests.

Corrosion Testing

Test	Test #	Price ($)	Quantity	Instructions
Resistivity-As Received (ASTM)	54	67		
Resistivity-100%Saturated(ASTM)	55	67		
Resistivity-Minimum (Caltrans)	56	146		
pH	57	32		
Sulfate	58	52		
Sulfide	59	42		
Redox	60	47		
Chloride	61	42		
Caltrans Package	62	240		
Package A	63	170		
Package B	64	170		
Package C	65	211		
Package D	66	211		
PG&E Package	67	247		

Instructions:

Effective
1 January 2016

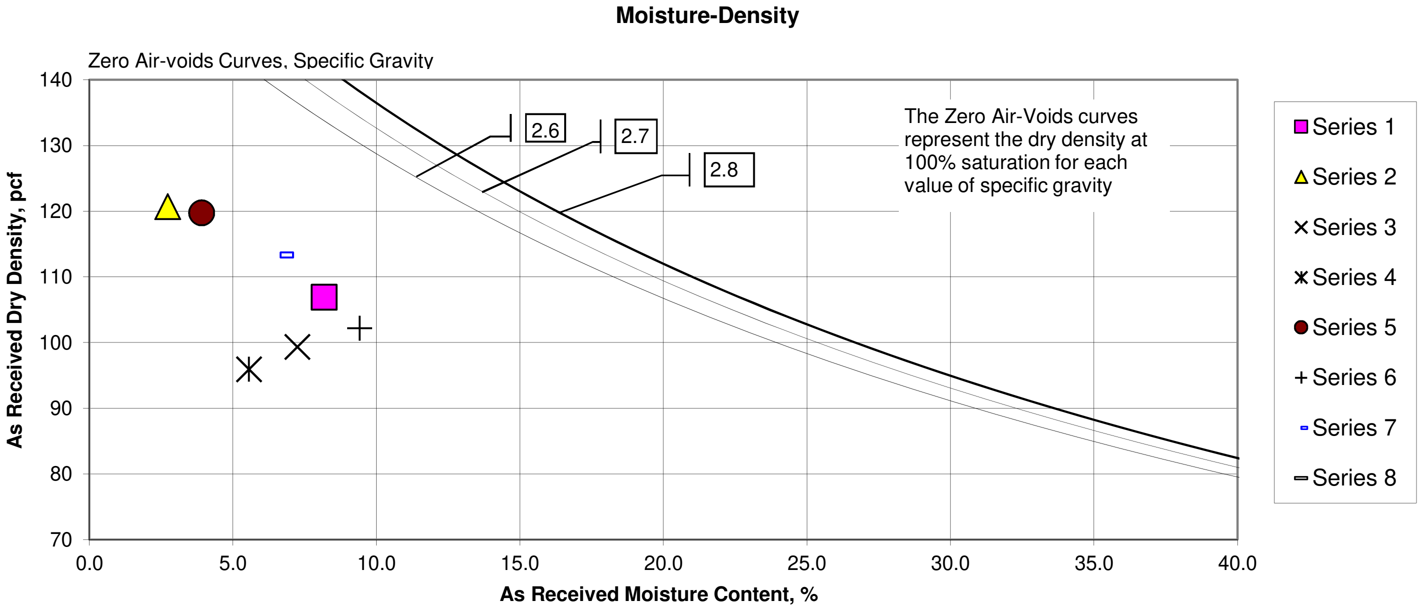
COOPER TESTING LABORATORY

Total and Effective Porosity Report
(API RP40 and ASTM D6836m)

Job No: 148-016
Client: Todd Groundwater
Project Name: SCVWD - IPR
Project No.: 37809
Date: 12/13/16
By: PJ

Boring: **Sample:** **Depth, ft:**	Sonic-1 12	Sonic-1 27.5	Sonic-2 7.5	Sonic-2 17.5	Sonic-2 27	Sonic-3 7	Sonic-3 14	
Visual Description:	Brown Sandy SILT (slightly plastic)	Light Brown Silty GRAVEL w/ Sand	Brown SILT w/ rootholes	Brown SILT w/ Sand/ Sandy SILT	Brown Silty GRAVEL w/ Sand (slightly plastic)	Dark Brown Silty SAND change to Grayish Brown Sandy SILT	Dark Brown Silty SAND (slightly plastic)	
Total Porosity, %	38.2	29.9	42.5	44.3	30.9	40.8	33.7	
Effective Porosity, %	13.5	13.3	9.0	9.3	11.4	26.1	21.9	
Air-filled Porosity, %	24.2	24.7	31.0	35.7	23.4	25.4	21.6	
Water-filled Porosity, %	14.0	5.3	11.5	8.5	7.5	15.4	12.1	
Specific Gravity	2.77	2.76	2.77	2.76	2.77	2.76	2.74	
Saturation, %	36.7	17.6	27.1	19.3	24.3	37.8	35.9	
Moisture, %	8.2	2.7	7.2	5.6	3.9	9.4	6.7	
Wet Unit wt, pcf	115.7	124.0	106.6	101.3	124.4	111.8	120.9	
Dry Unit wt, pcf	106.9	120.7	99.4	96.0	119.8	102.2	113.3	
Dry Unit wt, g/c	1.71	1.93	1.59	1.54	1.92	1.64	1.81	
Series	1	2	3	4	5	6	7	8

Note: All reported values above are for the "as received" condition except for the effective porosity which is measured at a tension of 1/3 Bar.



COOPER TESTING LABORATORY

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-1	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	12-12.5	**Remolded:**	

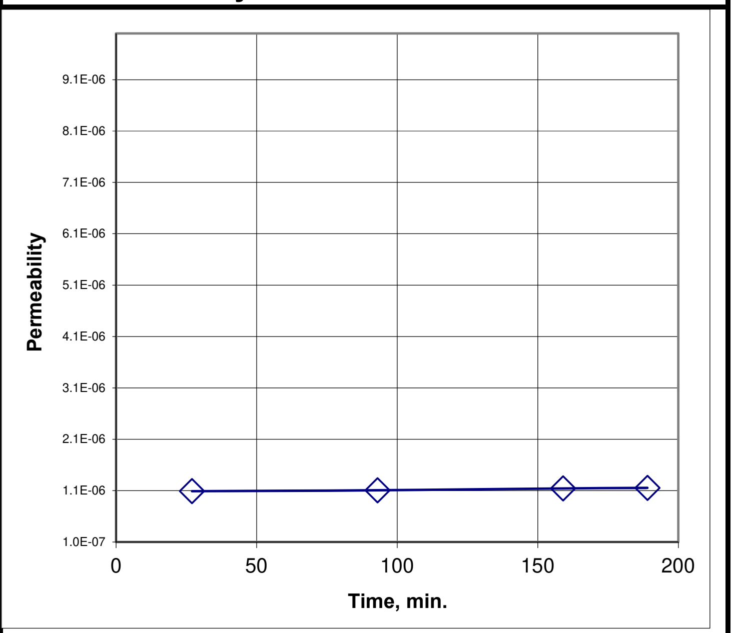
Visual Classification: Brown Sandy SILT (slightly plastic)

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 17

Max Sample Pressures, psi:			
Cell:	**Bottom**	**Top**	**Avg. Sigma3**
74	69.5	68.5	5

Date	Minutes	Head, (in)	K,cm/sec
10/21/2016	0.00	42.69	**Start of Test**
10/21/2016	27.00	41.64	1.1E-06
10/21/2016	93.00	39.14	1.1E-06
10/21/2016	159.00	36.64	1.1E-06
10/21/2016	189.00	35.54	1.2E-06



Average Hydraulic Conductivity: **1.E-06** **cm/sec**

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.50	2.51
Diameter, in	2.42	2.42
Area, in2	4.60	4.60
Volume in3	11.50	11.54
Total Volume, cc	188.4	189.1
Volume Solids, cc	117.4	117.4
Volume Voids, cc	71.1	71.8
Void Ratio	0.6	0.6
Total Porosity, %	37.7	37.9
Air-Filled Porosity (θa),%	21.8	1.5
Water-Filled Porosity (θw),%	16.0	36.5
Saturation, %	42.3	96.1
Specific Gravity	2.77	2.77
Wet Weight, gm	354.9	393.8
Dry Weight, gm	324.8	324.8
Tare, gm	0.00	0.00
Moisture, %	9.3	21.2
Wet Bulk Density, pcf	117.5	129.9
Dry Bulk Density, pcf	107.6	107.2
Wet Bulk Dens.ρb, (g/cm^3)	1.88	2.08
Dry Bulk Dens.ρb, (g/cm^3)	1.72	1.72

Remarks:

COOPER TESTING LABORATORY

Hydraulic Conductivity

ASTM D 5084

Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-1	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	27.5-28	**Remolded:**	

Visual Classification: Light Brown Silty GRAVEL w/ Sand/Clayey GRAVEL w/ Sand (Silty)

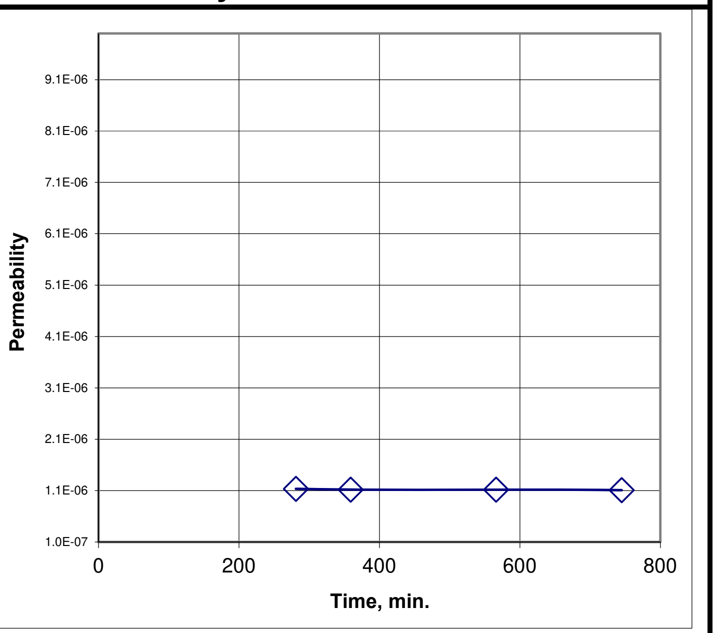
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
74	69	69	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 5

Date	Minutes	Head, (cm)	K,cm/sec
10/19/2016	0.00	27.00	**Start of Test**
10/19/2016	281.00	20.80	1.1E-06
10/19/2016	359.00	19.40	1.1E-06
10/19/2016	566.00	15.90	1.1E-06
10/19/2016	745.00	13.50	1.1E-06



Average Hydraulic Conductivity: **1.E-06** **cm/sec**

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.00	1.94
Diameter, in	2.42	2.41
Area, in2	4.58	4.56
Volume in3	9.16	8.85
Total Volume, cc	150.1	145.0
Volume Solids, cc	99.5	99.5
Volume Voids, cc	50.7	45.6
Void Ratio	0.5	0.5
Total Porosity, %	33.7	31.4
Air-Filled Porosity (θa),%	26.6	1.5
Water-Filled Porosity (θw),%	7.2	29.9
Saturation, %	21.3	95.2
Specific Gravity	2.76	2.76
Wet Weight, gm	285.0	317.6
Dry Weight, gm	274.2	274.2
Tare, gm	0.00	0.00
Moisture, %	3.9	15.8
Wet Bulk Density, pcf	118.5	136.7
Dry Bulk Density, pcf	114.0	118.0
Wet Bulk Dens.ρb, (g/cm^3)	1.90	2.19
Dry Bulk Dens.ρb, (g/cm^3)	1.83	1.89

Remarks: Particle size vs. sample diameter may have significantly impacted result.

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-2	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	7.5-8	**Remolded:**	

Visual Classification: Brown SILT w/ rootholes

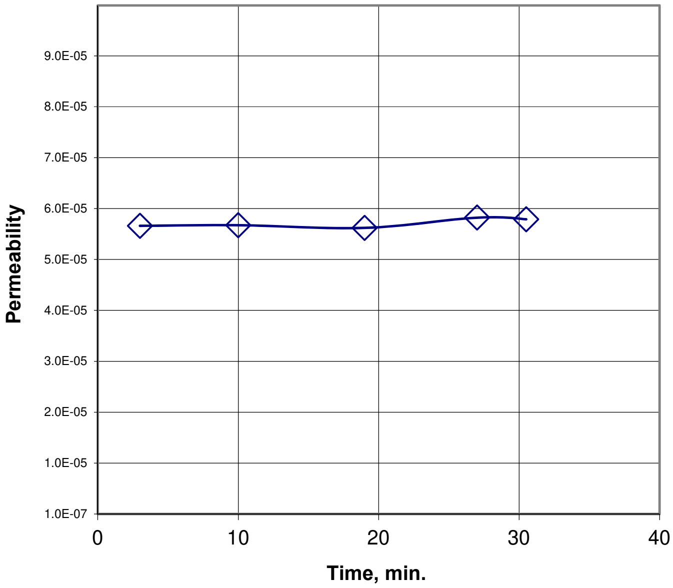
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
74	69	69	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 6

Date	Minutes	Head, (in)	K,cm/sec
10/21/2016	0.00	15.00	**Start of Test**
10/21/2016	3.00	13.00	5.7E-05
10/21/2016	10.00	9.30	5.7E-05
10/21/2016	19.00	6.10	5.6E-05
10/21/2016	27.00	4.00	5.8E-05
10/21/2016	30.50	3.40	5.8E-05



Average Hydraulic Conductivity: 6.E-05 cm/sec

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.50	2.49
Diameter, in	2.42	2.41
Area, in2	4.60	4.56
Volume in3	11.50	11.34
Total Volume, cc	188.4	185.9
Volume Solids, cc	102.2	102.2
Volume Voids, cc	86.2	83.7
Void Ratio	0.8	0.8
Total Porosity, %	45.8	45.0
Air-Filled Porosity (θa),%	32.3	2.2
Water-Filled Porosity (θw),%	13.4	42.9
Saturation, %	29.3	95.2
Specific Gravity	2.77	2.77
Wet Weight, gm	308.1	362.5
Dry Weight, gm	282.8	282.8
Tare, gm	0.00	0.00
Moisture, %	8.9	28.2
Wet Bulk Density, pcf	102.0	121.7
Dry Bulk Density, pcf	93.7	94.9
Wet Bulk Dens.ρb, (g/cm^3)	1.63	1.95
Dry Bulk Dens.ρb, (g/cm^3)	1.50	1.52

Remarks:

COOPER TESTING LABORATORY

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-2	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	17.5-8	**Remolded:**	

Visual Classification: Brown SILT w/ Sand/ Sandy SILT

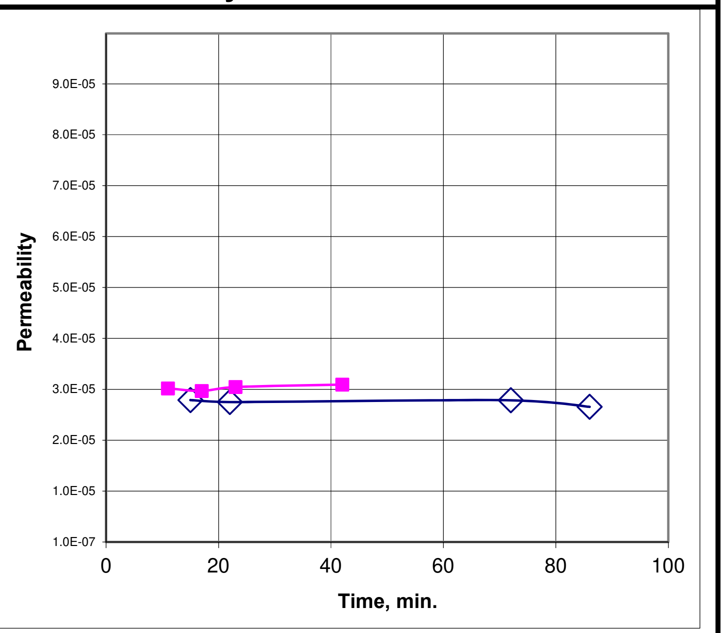
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
84	79	79	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 4

Date	Minutes	Head, (cm)	K,cm/sec
10/20/2016	0.00	27.00	**Start of Test**
10/20/2016	15.00	20.40	2.8E-05
10/20/2016	22.00	18.00	2.8E-05
10/20/2016	72.00	7.00	2.8E-05
10/20/2016	86.00	5.80	2.7E-05
10/21/2016	11.00	21.50	3.0E-05
10/21/2016	17.00	19.10	3.0E-05
10/21/2016	23.00	16.70	3.1E-05
10/21/2016	42.00	11.10	3.1E-05



Average Hydraulic Conductivity: **3.E-05** **cm/sec**

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.50	2.39
Diameter, in	2.42	2.42
Area, in2	4.61	4.58
Volume in3	11.52	10.95
Total Volume, cc	188.7	179.4
Volume Solids, cc	108.6	108.6
Volume Voids, cc	80.1	70.8
Void Ratio	0.7	0.7
Total Porosity, %	42.5	39.5
Air-Filled Porosity (θa),%	32.1	1.9
Water-Filled Porosity (θw),%	10.3	37.6
Saturation, %	24.3	95.2
Specific Gravity	2.76	2.76
Wet Weight, gm	318.8	366.7
Dry Weight, gm	299.3	299.3
Tare, gm	0.00	0.00
Moisture, %	6.5	22.5
Wet Bulk Density, pcf	105.4	127.5
Dry Bulk Density, pcf	98.9	104.1
Wet Bulk Dens.ρb, (g/cm^3)	1.69	2.04
Dry Bulk Dens.ρb, (g/cm^3)	1.59	1.67

Remarks:

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-2	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	27-27.5	**Remoled:**	

Visual Classification: Brown Silty GRAVEL w/ Sand (slightly plastic)/Clayey GRAVEL w/ Sand (Silty)

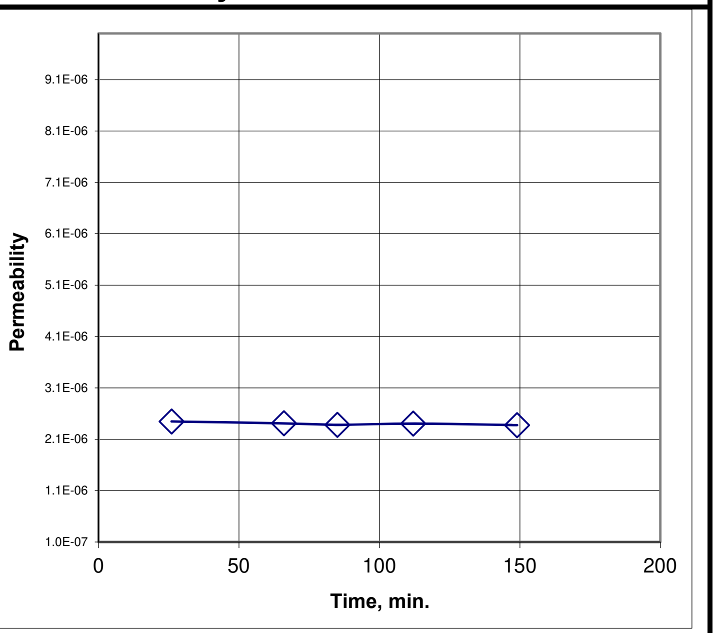
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
74	69.5	68.5	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 19

Date	Minutes	Head, (cm)	K,cm/sec
10/21/2016	0.00	97.33	**Start of Test**
10/21/2016	26.00	92.33	2.4E-06
10/21/2016	66.00	85.33	2.4E-06
10/21/2016	85.00	82.33	2.4E-06
10/21/2016	112.00	77.93	2.4E-06
10/21/2016	149.00	72.73	2.4E-06



Average Hydraulic Conductivity: 2.E-06 cm/sec

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.01	1.97
Diameter, in	2.42	2.42
Area, in2	4.60	4.60
Volume in3	9.23	9.06
Total Volume, cc	151.2	148.5
Volume Solids, cc	101.2	101.2
Volume Voids, cc	50.0	47.3
Void Ratio	0.5	0.5
Total Porosity, %	33.0	31.8
Air-Filled Porosity (θa),%	22.3	1.3
Water-Filled Porosity (θw),%	10.8	30.5
Saturation, %	32.6	95.8
Specific Gravity	2.77	2.77
Wet Weight, gm	297.0	326.0
Dry Weight, gm	280.7	280.7
Tare, gm	0.00	0.00
Moisture, %	5.8	16.1
Wet Bulk Density, pcf	122.6	137.0
Dry Bulk Density, pcf	115.9	118.0
Wet Bulk Dens.ρb, (g/cm^3)	1.96	2.19
Dry Bulk Dens.ρb, (g/cm^3)	1.86	1.89

Remarks: Particle size vs. sample diameter may have significantly impacted result.

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-3	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	7-7.5	**Remolded:**	

Visual Classification: Dark Brown Silty SAND change to Grayish Brown Sandy SILT

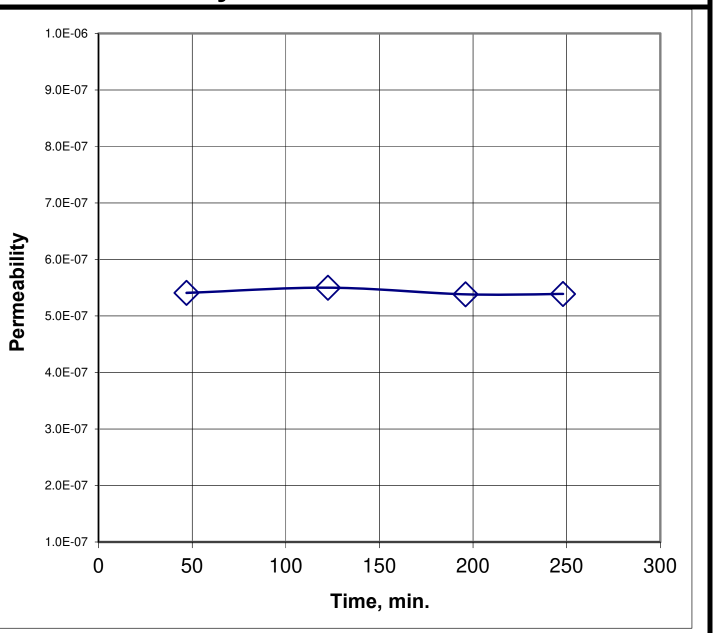
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
74	69.5	68.5	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 19

Date	Minutes	Head, (cm)	K,cm/sec
10/21/2016	0.00	97.33	**Start of Test**
10/21/2016	47.00	95.33	5.4E-07
10/21/2016	122.50	92.13	5.5E-07
10/21/2016	196.00	89.33	5.4E-07
10/21/2016	248.00	87.33	5.4E-07



Average Hydraulic Conductivity: **5.E-07** **cm/sec**

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.01	1.98
Diameter, in	2.40	2.41
Area, in2	4.54	4.54
Volume in3	9.10	8.99
Total Volume, cc	149.1	147.4
Volume Solids, cc	87.0	87.0
Volume Voids, cc	62.2	60.4
Void Ratio	0.7	0.7
Total Porosity, %	41.7	41.0
Air-Filled Porosity (θa),%	10.6	1.6
Water-Filled Porosity (θw),%	31.0	39.3
Saturation, %	74.5	96.0
Specific Gravity	2.76	2.76
Wet Weight, gm	286.5	298.2
Dry Weight, gm	240.2	240.2
Tare, gm	0.00	0.00
Moisture, %	19.3	24.1
Wet Bulk Density, pcf	119.9	126.2
Dry Bulk Density, pcf	100.5	101.7
Wet Bulk Dens.ρb, (g/cm^3)	1.92	2.02
Dry Bulk Dens.ρb, (g/cm^3)	1.61	1.63

Remarks:

Hydraulic Conductivity
ASTM D 5084
Method C: Falling Head Rising Tailwater

Job No:	148-016	**Boring:**	Sonic-3	**Date:**	11/02/16
Client:	Todd Groundwater	**Sample:**		**By:**	MD/PJ
Project:	37809	**Depth, ft.:**	14-14.5	**Remolded:**	

Visual Classification: Dark Brown Silty SAND (slightly plastic)/ Sandy SILT

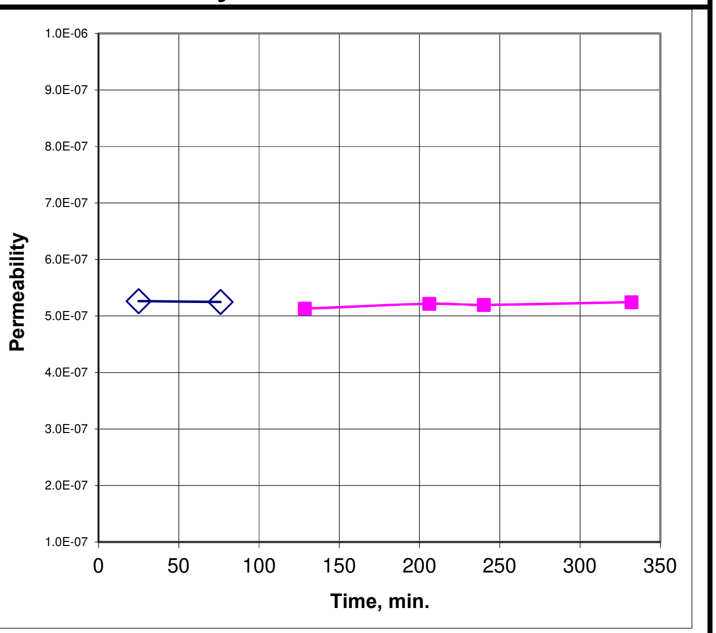
Max Sample Pressures, psi:

Cell:	Bottom	Top	Avg. Sigma3
74	69.5	68.5	5

B: = >0.95 **("B" is an indication of saturation)**

Max Hydraulic Gradient: = 20

Date	Minutes	Head, (cm)	K,cm/sec
10/20/2016	0.00	97.33	**Start of Test**
10/20/2016	25.00	96.33	5.3E-07
10/20/2016	76.00	94.33	5.2E-07
10/21/2016	128.50	92.33	5.1E-07
10/21/2016	206.00	89.33	5.2E-07
10/21/2016	240.00	88.13	5.2E-07
10/21/2016	332.00	84.73	5.2E-07



Average Hydraulic Conductivity: **5.E-07** **cm/sec**

Sample Data:	**Initial (As-Received)**	**Final (At-Test)**
Height, in	2.00	1.94
Diameter, in	2.37	2.36
Area, in2	4.40	4.37
Volume in3	8.81	8.49
Total Volume, cc	144.4	139.2
Volume Solids, cc	89.7	89.7
Volume Voids, cc	54.7	49.5
Void Ratio	0.6	0.6
Total Porosity, %	37.9	35.5
Air-Filled Porosity (θa),%	17.4	1.6
Water-Filled Porosity (θw),%	20.5	34.0
Saturation, %	54.1	95.6
Specific Gravity	2.74	2.74
Wet Weight, gm	275.0	292.7
Dry Weight, gm	245.4	245.4
Tare, gm	0.00	0.00
Moisture, %	12.0	19.3
Wet Bulk Density, pcf	118.8	131.2
Dry Bulk Density, pcf	106.0	110.0
Wet Bulk Dens.ρb, (g/cm^3)	1.90	2.10
Dry Bulk Dens.ρb, (g/cm^3)	1.70	1.76

Remarks:

COOPER
TESTING LABORATORY

Specific Gravity by Pycnometer
ASTM D 854

CTL Job#:	148-016	**Project Name:**	SCVWD-IPR	**Date:**	11/02/16
Client:	Todd Groundwater	**Project No.:**	37809	**Run By:**	MD
				Checked	DC

Boring:	Sonic-1	Sonic-1	Sonic-2	Sonic-2	Sonic-2	Sonic-3	Sonic-3	
Sample:								
Depth, ft.:	12	27.5	7.5	17.5	27	7	14	
Pan No.:								
Soil Description (visual)	Brown Sandy SILT (slightly plastic)	Light Brown Silty GRAVEL w/ Sand	Brown SILT w/ rootholes	Brown SILT w/ Sand/ Sandy SILT	Brown Silty GRAVEL w/ Sand (slightly plastic)	Dark Brown Silty SAND change to Grayish Brown Sandy SILT	Dark Brown Silty SAND (slightly plastic)	
Pycnometer ID:	P03	P02	P02	P01	P03	P04	P01	
Mass of Clean, Dry Pycnometer (g):	158.96	158.13	158.13	160.06	158.96	158.81	160.06	
Mass of Pycnometer, Soil, and Water (g):	722.90	727.24	724.17	721.66	733.41	722.55	723.86	
Temperature of Slurry (°C):	21.1	21.1	21.1	21.1	21.1	21.1	21.1	
Tare ID:								
Mass of Tare (g):	234.11	230.01	227.52	232.54	234.41	224.58	224.67	
Mass of Dry Soil and Tare (g):	337.00	341.26	333.72	331.94	353.62	327.46	327.98	
Mass of Dry Soil (g):	102.89	111.25	106.20	99.40	119.21	102.88	103.31	
Mass of Pycnometer and Water at Test Temp (g):	657.18	656.34	656.34	658.32	657.18	656.91	658.32	
Specific Gravity @ Test Temp:	2.768	2.757	2.768	2.757	2.774	2.763	2.735	
Specific Gravity @ 20 °C:	**2.768**	**2.757**	**2.767**	**2.756**	**2.773**	**2.762**	**2.735**	

Appendix G - Ford Ponds Area Infiltration Test Monitoring Well Logs and Field Abandonment Forms

TODD GROUNDWATER

EXPLORATORY BORING/WELL LOG

PROJECT NO.: 37809
PROJECT LOCATION: Ford Road Ponds adjacent parcel
HOLE NO.: MW-2
HOLE LOCATION: next to perc. pit no. 2
ELEVATION: ~190 msl
LOGGED BY: Amber Ritchie
DATE STARTED: 1/9/2017
DATE FINISHED: 1/9/2017

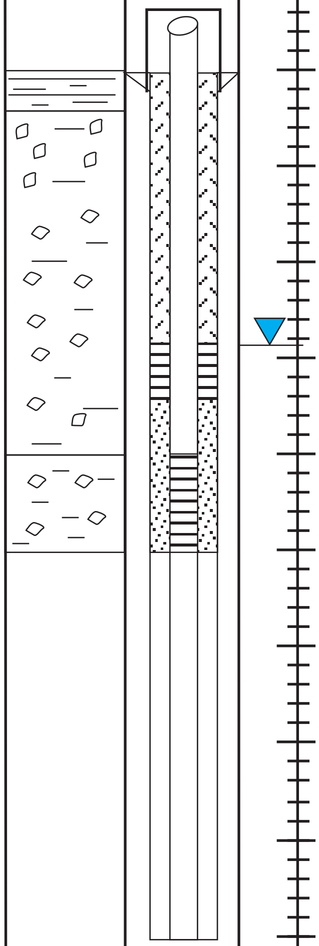
DRILLING INFORMATION

DRILLING AGENCY: Gregg Drilling & Testing Inc.
DRILLER: Vince Pokryka
DRILLING EQUIPMENT: Limited Access Rhino M5T Track Mounted Rig
DRILLING METHOD: Hollow Stem Auger
DRILL BIT: 8 in
DRILLING FLUID: None
SAMPLES TAKEN: No
SAMPLE TYPE: N/A
NUMBER OF SAMPLES: N/A
SAMPLING INTERVAL: N/A
FIRST WATER: 11.62 from TOC
TOTAL DEPTH: 25’
DRILLED DIAMETER: 8”

COMPLETION/DESTRUCTION INFORMATION

CASING SIZE & TYPE: 2” diameter Sch. 40 PVC
CASED INTERVAL: 0-20’ bgs
SCREEN SIZE AND TYPE: 2” diameter PVC 0.01 slot
SCREENED INTERVAL: 20-25’
FILTER PACK: #2/12 Sand
PACKED INTERVAL: 17-25’
SEAL/BUFFER TYPE: Saturated bentonite chips
SEAL/BUFFER INTERVAL: 14-17’
SURFACE SEAL TYPE: neat cement
SURFACE SEAL INTERVAL: 0-14’
WELLHEAD PROTECTION: locking stickup box (3’)
OTHER:

DEPTH (FEET)	LITHOLOGIC DESCRIPTION		GRAPHIC LOG: LITHOLOGY	GRAPHIC LOG: COMPLETION/ DESTRUCTION	WATER CONTENT (%)	SAMPLES: TYPE	SAMPLES: INTERVAL	SAMPLES: PENETRATION RESISTANCE (BLOWS)	REMARKS
0	10YR 4/2 dark grayish brown Clay and Silt	CL							
5									
10	10YR 4/2 dark grayish brown silty Gravel (40%/60%)	GM							
15									
20	10YR 4/2 dark grayish brown silty Gravel (60%/40%) grading to Silt	GM							
25									
30									
35									
40									
45									



SHEET 1 OF 1

TODD GROUNDWATER

EXPLORATORY BORING/WELL LOG

PROJECT NO.: 37809
PROJECT LOCATION: Ford Road Ponds adjacent parcel
HOLE NO.: MW-1
HOLE LOCATION: next to perc. pit no. 4
ELEVATION: ~210 msl
LOGGED BY: Amber Ritchie
DATE STARTED: 1/9/2017
DATE FINISHED: 1/9/2017

DRILLING INFORMATION

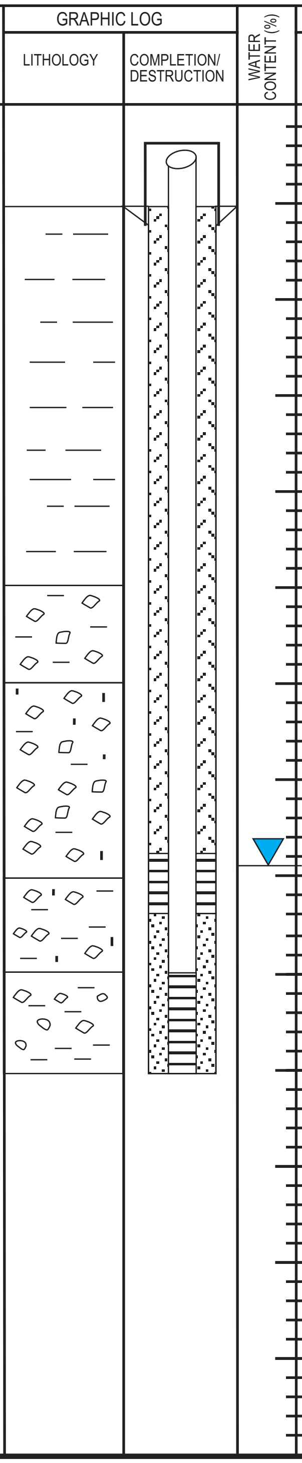
DRILLING AGENCY: Gregg Drilling & Testing Inc.
DRILLER: Vince Pokryka
DRILLING EQUIPMENT: Limited Access Rhino M5T Track Mounted Rig
DRILLING METHOD: Hollow Stem Auger
DRILL BIT: 8 in
DRILLING FLUID: None
SAMPLES TAKEN: No
SAMPLE TYPE: N/A
NUMBER OF SAMPLES: N/A
SAMPLING INTERVAL: N/A
FIRST WATER: 31.23 from TOC
TOTAL DEPTH: 45’
DRILLED DIAMETER: 8”

COMPLETION/DESTRUCTION INFORMATION

CASING SIZE & TYPE: 2” diameter Sch. 40 PVC
CASED INTERVAL: 0-40’ bgs
SCREEN SIZE AND TYPE: 2” diameter PVC 0.01 slot
SCREENED INTERVAL: 40-45’
FILTER PACK: #2/12 Sand
PACKED INTERVAL: 37-45’
SEAL/BUFFER TYPE: Saturated bentonite chips
SEAL/BUFFER INTERVAL: 34-37’
SURFACE SEAL TYPE: neat cement
SURFACE SEAL INTERVAL: 0-34’
WELLHEAD PROTECTION: locking stickup box (3’)
OTHER:

DEPTH (FEET)	LITHOLOGIC DESCRIPTION		WATER CONTENT (%)	SAMPLES TYPE	SAMPLES INTERVAL	PENETRATION RESISTANCE (BLOWS)	REMARKS
0							
5							
	10YR 4/4 Silt	ML					
10							
15							
20							
25	10YR 4/4 Silt with Gravel (80%/20%)	GM					
30	10YR 5/4 Silty, Sandy Gravel (15%/15%/70%)	GM					
35	10YR 5/4 Silty, Sandy Gravel (30%/30%/40%)	GM					
40							
45	10YR 5/4 Yellowish brown Gravel grading to Silt in bottom of hole (60%/40%)	GM ML					

GRAPHIC LOG



SHEET 1 OF 1

GREGG DRILLING & TESTING

Project Field Bill Todays Date: 6-15-17

950 Howe Road, Martinez, CA 94553
Ph: (925) 313-5800 www.greggdrilling.com

COMPANY NAME Todd Groundwater
SITE NAME Ford Road Ponds
ADDRESS Northern end of Eden Park Place
CROSS STREET Silicon Valley Blvd
CITY San Jose
PROJECT MANAGER Sally McCraven

GDT JOB NUMBER D2170003
JOB START DATE 6/15/2017
JOB END DATE 6/15/2017
START TIME 8:00
EQUIPMENT D75 / S46
DRILLER/STAFF Daniel Gallosa
STAFF Tony

ITEM	UNITS	QUANTITY
RIG NO./TYPE D75/BAM[illegible]	HOUR	4
MOB-DEMOB-TRAVEL/SERVICE RUN	HOUR	3
PER DIEM	MAN/NGT	
PREMIUM TIME	MAN/HR	
ADDITIONAL TECHNICIAN	HOUR	
STANDBY/MOVE TIME	HOUR	
STEAM CLEANING AT YARD	DAY	
GROUT PUMP/STEAM CLEANER	DAY	
MUD SYSTEM	DAY	
FORKLIFT/BOBCAT/LOADER	DAY	
WATER TRUCK TENDER	DAY	
SERVICE TRUCK S46	DAY	
LIFTGATE TRUCK	DAY	
CONST./HAND AUGER CREW (2 men)	HOUR	
CONCRETE CORING DIA.	EACH	
P.P.E. UPGRADE TIME	HOUR	

BORING #	DEPTH	INTERVAL/TYPE OF SAMPLING	SIZE OF WELL
TC	(2)	2" wells 25' Ab[illegible]	
[illegible]	[illegible]	[illegible] Remove [illegible]	
[illegible]	[illegible]	Stow [illegible]	
BACK[illegible]		w/ dirt	

Time Leave Yard: 6 30 Time Arrive Site: 8:00

Time Return Yard: 1 30 Time Leave Site: 12 [illegible]

Lunch Start: Lunch Finish:

SUBCONTRACTOR - ADDITIONAL EQUIPMENT:

EQUIPMENT DAMAGE:

WE CAN ASSUME NO RESPONSIBILITY FOR DAMAGE OF UNDERGROUND UTILITIES. In the event of adverse and/or hazardous dilling conditions, client will be informed if rate changes and/or responsibility for replacement of lost of damaged equipment. Minimum call out $1200. Also applicable to cancellations within 24 hrs. of scheduled start.

USA Clearance No.____________

ITEMS	UNITS	QUANTITY
SEISMIC CPT (Interval Test)	TEST	
UVOST RENTAL	DAY	
BACKFILL TEST LOCATIONS	FOOT	
BENTONITE CHIPS	BAG	
BENTONITE PELLETS	PAIL	
BENTONITE DRILL MUD	BAG	
BENTONITE GROUT	BAG	
FILTER SAND	BAG	
ASPHALT PATCH	BAG	
READY-MIX CONCRETE	BAG	
PORTLAND CEMENT/QUICK SET	BAG	5
WOOD PLUGS	EACH	
DISPOSABLE BAILERS	EACH	
PVC CASING 3/4" 2" 4" OTHER	FOOT	
PVC SCREEN 3/4" 2" 4" OTHER	FOOT	
THREADED FITTINGS 3/4" 2" 4" OTHER	EACH	
SLIP FITTINGS 3/4" 2" 4" OTHER	EACH	
LOCKING CAPS 2" 4" OTHER	EACH	
MONITORING WELL BOX (WATERTIGHT)	EACH	
ANODIZED STAND PIPE / BOLLARDS	EACH	
GROUNDWATER SAMPLE CONSUMABLES	EACH	
1/4", 1/2" TUBING	FOOT	
DISPOSABLE TIPS	EACH	
SAMPLE RINGS & CAPS	EACH	
55-GALLON DRUM	EACH	
OTHER		

Section 13751 through 13754 of the California Water Code requires that a report be filed for every groundwater well installation or abandonment. If the client does not elect to submit this report, Gregg Drilling & Testing, Inc. will complete the appropriate paperwork for a $20 fee per well.

Client to complete ☐ GDT to complete ☐

The named parties are hereby notified that if charges for above labor, services, equipment or materials furnished or to be furnished are not paid for in full, the improved property referred to above may be subject to mechanics lien (per Section 1181, et. seq. to the California Code of Civil Procedure) and construction funds are subject to "Stop notice" action (per Section 1190.1, California Code of Civil Procedure).

TERMS: NET 30 days. 1.5% per month finance charge on accounts 30 days past due. The undersigned accepts the terms as stated above for services rendered.

Project Name:____________ P.O./Task #____________

Signature of Field Representative____________

Printed Name____________ Date____________

Appendix H - Morgan Park Wells Technical Specifications

Santa Clara Valley Water District

CAPITAL PROGRAM SERVICES
5750 ALMADEN EXPRESSWAY
SAN JOSE, CA 95118-3686
TELEPHONE (408) 630-3088
FACSIMILE (408) 979-5631
www.valleywater.org
scvwdplanroom@valleywater.org

Notification of this Addendum is transmitted via email to all current plan holders. This Addendum is posted on the District website at www.valleywater.org/Programs/Construction.aspx.

October 26, 2016

ADDENDUM NO. 1
TO CONTRACT DOCUMENTS FOR THE JOHN D. MORGAN PARK MONITORING WELLS PROJECT
Project No. 91301001 Contract No. C0622

Notice is hereby given to Prospective Bidders that the Contract Documents are modified as hereinafter set forth.

BID DOCUMENTS

NOTICE TO BIDDERS

> **REPLACE** Notice to Bidders in its entirety with Notice to Bidders (REV 1) included as ATTACHMENT 1 of this Addendum No. 1

THIS ADDENDUM NO. 1, WHICH CONTAINS 1 PAGE AND 1 ATTACHMENT, IS ATTACHED TO AND IS A PART OF THE SPECIFICATIONS AND CONTRACT DOCUMENTS FOR THIS PROJECT.

Katherine Oven
Katherine Oven, P.E.
Deputy Operating Officer
Water Utility Capital Division

Date: 10/26/2016

Enclosure(s):

ATTACHMENT 1: Notice to Bidders (REV 1)

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

ADDENDUM NO. 1

ATTACHMENT 1:

Notice to Bidders (REV 1)

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

Project No. 91304001

Contract No. C0622

1. **Notice**. Notice is hereby given that sealed Proposals will be accepted by the Construction Program of the Santa Clara Valley Water District, Room B108, of the District's Administration Building, 5750 Almaden Expressway, San Jose, California 95118 up to 2:00 p.m. on November 9, 2016, for furnishing all material and performing all work necessary for construction of the John D. Morgan Park Monitoring Wells Project, located in the City of Campbell, California.

2. **California State Department of Industrial Relations Contractor and passwordSub Contractor Registration Requirements**. (See Article 3.05 and 6.04 for the full text.) California Labor Code section 1771.1 requires:

   A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Section 1725.5 of the California Labor Code.

   An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that any of the following apply:

   (1) The subcontractor is registered prior to the bid opening.

   (2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee.

   (3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.

3. **Summary of Work**

   A. **Project Description**.

   The work to be completed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required to construct the John D. Morgan Park Monitoring Wells Project as shown on the Drawings and detailed in the Specifications. The project scope includes, but is not limited to, the following:

   1. Drilling two borings (up to 12 inches in diameter) to a maximum depth of approximately 400 feet
   2. Retrieving soil cores for analysis

3. Constructing up to five monitoring wells at various depths in the two borings
4. Constructing a temporary sound wall
5. Parking lot restriping and resurfacing following completion of drilling and well construction

B. Sole Source Products. None.

4. **Contract Time**. Time limit for the completion of the work is 147 calendar days.

A. Milestone #1 : Completion of well construction work and parking lot restriping and resurfacing work.
B. Milestone #2 : Completion of all remaining Work.

5. **Liquidated Damages**. See Special Provisions Article 11.07 of the contract documents for requirements regarding Liquidated Damages.

6. **Estimated Cost**. The estimated cost of the Project is between $500,000 and $600,000. This estimate is intended to serve merely as an indication of the magnitude of the work. Neither the Bidder(s) nor the Contractor will be entitled to pursue a claim or be compensated due to variance in the stated estimated cost range.

A. Additive/Deductive Bid Items. None.

B. Supplemental Bid Items. None.

7. **Contractor's License Requirement.** The Bidder must possess a Class A Contractor's license or a C-57 Well Drilling Contractor's license when the Bid is submitted. All work within the contract must be performed by an appropriately licensed contractor/subcontractor.

8. **Pre-Bid Conference and Site Showing**. A pre-bid conference/site visit will be conducted by the District on Tuesday, November 1, 2016. The conference will convene at 10:30 a.m. at the John D. Morgan Park, Campbell, CA, in the parking lot off of Budd Avenue. The pre-bid conference will begin with a District presentation on the Small Business Outreach Program. Attendance by the Bidder at the pre-bid conference/site visit is optional. Attendance at the pre-bid by subcontractors is not required.

Attendance by the Bidder at the pre-bid conference/site visit is:

☐ Mandatory
☒ Optional

The objective of the site visit is to familiarize prospective Bidders with the site; no additional site visits will be allowed. Please confirm your intent to attend the pre-bid meeting and site visit 24 hours in advance by sending e-mail to scvwdplanroom@valleywater.org and provide the name(s) of each person and their organization.

Reasonable efforts will be made to accommodate persons with disabilities wishing to attend the pre-bid meeting/site visit. Please request accommodations when confirming attendance.

9. **Availability of Bid Documents**. Contract Documents, including Drawings and Specifications, are available in both paper and electronic (pdf) formats. Paper copies may be purchased for the nonrefundable price of $30. Provide FedEx account number or add $10 per set for packaging and postage. Electronic version is free, transferred via file transfer appliance (FTA) site.

To order Contract documents:	Request Form and information available online. Website: http://www.valleywater.org/Programs/Construction.aspx Email: scvwdplanroom@valleywater.org FAX: (408) 979-5631 Phone: (408) 630-3088
To pick up Contract documents in person:	Santa Clara Valley Water District 5700 Almaden Expressway San Jose, CA 95118 Business Hours: 8 a.m. – 5 p.m.

10. **Inquiries**. The Bidder must submit all requests for clarification, or interpretation of the Bid Documents in accordance with the requirements stated in Article 3.04 of the Standard Provisions. Written questions must be directed to the project manager and submitted at least seven (7) calendar days before the deadline for receipt of Bids.

The District may issue written Addenda as appropriate for clarification or other purposes during the bidding period. Addendum notification(s) will be sent to each planholder at the email address provided by the contractor for the planholders list and addenda will be posted on the District's website at www.valleywater.org/Programs/Construction.aspx.

A. **Project Manager**. The District's project manager for this project is Karen Uyeda and can be reached via e-mail at kuyeda@valleywater.org or at (408) 630-2037.

B. **Process Questions**. For questions regarding the advertisement process, contact the District Plan Room at (408) 630-3088, or scvwdplanroom@valleywater.org.

11. **Prevailing Wage Requirements**.

A. Workers employed on this Project must be paid at rates at least equal to the prevailing wage rates as determined by the State of California Department of Industrial Relations pursuant to §1770 of the Labor Code. Said wage rates are incorporated herein by reference and may be inspected upon request. The rates are also available on the State of California Department of Industrial Relations website at http://www.dir.ca.gov/. See Standard Provisions — Articles 6.04 through 6.06 for related requirements.

B. This Project is subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations. The Contractor and subcontractors must furnish the records specified in Section 1776 directly to the Labor Commissioner, in the following manner: monthly, in a format prescribed by the Labor Commissioner.

12. Bid Proposal Submittal. All Proposals must be submitted in sealed envelopes addressed to Construction Program of the Santa Clara Valley Water District, and state the Project name and Project number on the outside of the sealed envelope. Each Bid must be submitted on the prescribed Bid Forms. All information on Bid Forms must be completed in ink.

A. Alternate Delivery for Bid Submittal. Bidders electing to submit a Proposal by FEDEX, UPS, DHL, CA Overnight, Golden State Overnight, etc., must address the submittal in accordance with instructions stated in Paragraph 12 above. Any Proposal received after 2 p.m. will be considered non-responsive.

Address the outside delivery envelope as follows:

Santa Clara Valley Water District
Attention: Construction Program — **BID**
5905 Winfield Boulevard
San Jose, CA 95123-2428

Note: USPS (US Mail) does not deliver to 5905 Winfield Boulevard.

13. Bid Opening. The Construction Program staff will open Proposals at the time and place stated in Paragraph 1 above.

14. Errors or Discrepancies in the Bids. The District Board of Directors reserves the right to reject any and all Bid Proposals and to waive minor defects or irregularities in any submitted Bid Form(s).

15. Bidders Security. Each Proposal must be accompanied by cash, a certified or cashier's check, or a Bidder's bond in the sum of not less than 10 percent of the total aggregate of the Proposal including all additive Bid items. Said checks or bonds must be made payable to the Santa Clara Valley Water District.

16. Contract Retention.

☒ The Contract Retention for this Project is established at five percent of the Contract Price.

☐ The Contract Retention for this Project is established at ten percent of the Contract Price. The Board of Directors has made a finding that the Project is substantially complex and therefore requires retention higher than five percent.

17. **Substitution of Securities**. The Contractor may, at the Contractor's request and expense substitute securities equivalent to the amount withheld by District to ensure the performance of the contract in accordance with §22300 of the Public Contract Code.

18. **Small Business Preference**. The District has elected to implement the small business preference provisions of Public Contract Code §2002(a)(1). For purposes of the District's program, a small or micro business is as defined in Government Code §14837. Please refer to the small business compliance requirements stated in the Small Business Instructions included with these Bid documents.

19. **Equal Opportunity**. The District is an equal opportunity employer and all contractors of District projects are to have and follow a policy of equal opportunity including adherence to all state and federal laws and regulations, including the Federal Equal Opportunity Clause.

By order of the Board of Directors of the Santa Clara Valley Water District, San Jose, California, on October 25, 2016.

ATTEST: MICHELE L. KING, CMC

ORIGINAL SIGNED BY MICHELLE KING
____
Clerk/Board of Directors

SPECIFICATIONS AND CONTRACT DOCUMENTS AND MAP AND CONSTRUCTION PLAN

FOR THE CONSTRUCTION OF

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

Project No. 91304001

Contract No. C0622

October 2016

Santa Clara Valley Water District℠

THIS PAGE INTENTIONALLY LEFT BLANK

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR THE

CONSTRUCTION OF

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

PROJECT NO. 91304001

CONTRACT NO. C0622

SANTA CLARA VALLEY WATER DISTRICT

Approved By:

KAREN T. UYEDA
No. 51215

Karen Uyeda

10-20-2016

Karen Uyeda, P.E.
Engineering Unit Manager
Water Utility Capital Division

Date

Katherine Oven

10-20-2016

Katherine Oven, P.E.
Deputy Operating Officer
Water Utility Capital Division

Date

Accepted By:

Garth C. Hall

10-20-2016

Garth Hall, P.E.
Deputy Operating Officer
Water Supply Division

Date

October 2016

DISTRICT BOARD OF DIRECTORS

John L. Varela, Vice Chair	**District 1**	**Nai Hsueh**	**District 5**
Barbara Keegan, Chair	**District 2**	**Tony Estremera**	**District 6**
Richard P. Santos	**District 3**	**Gary Kremen**	**District 7**
Linda J. LeZotte	**District 4**		

THIS PAGE INTENTIONALLY LEFT BLANK

SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF
JOHN D. MORGAN PARK MONITORING WELLS PROJECT

PROJECT NO. 91304001

CONTRACT NO. C0622

SANTA CLARA VALLEY WATER DISTRICT

SPECIAL PROVISIONS PREPARED BY:

Karen Uyeda

Karen Uyeda, P.E.
Engineering Unit Manager
Water Utility Capital Division

10-20-2016
Date

REGISTERED PROFESSIONAL ENGINEER
KAREN T. UYEDA
No. 51215
CIVIL
STATE OF CALIFORNIA

TECHNICAL PROVISIONS PREPARED BY:

SECTIONS 22, 35, AND 36

Doug Lee

Doug Lee, P.E.
Associate Civil Engineer
Water Utility Capital Division

10-20-2016
Date

REGISTERED PROFESSIONAL ENGINEER
DOUG LEE
No. 74001
CIVIL
STATE OF CALIFORNIA

SECTIONS 23 – 34, 37, AND 38

Thomas Mohr

Thomas Mohr, PG HG
Senior Water Resources Specialist
Water Supply Division

10-20-2016
Date

PROFESSIONAL GEOLOGIST
THOMAS
K.G.
MOHR
CERTIFIED
HYDROGEOLOGIST
No. 98
STATE OF CALIFORNIA

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

Page

STANDARD PROVISIONS

SECTION 1. DEFINITIONS....................1-1

SECTION 2. CONTRACT DOCUMENTS....................2-1

2.01. Contract Documents and Precedence....................2-1
2.02. State Specifications and Plans....................2-2
2.03. Clarification of Contract....................2-2
2.04. Requests for Information....................2-3
2.05. Examination of Drawings, Specifications, and Site of Work....................2-4

SECTION 3. SCOPE OF WORK....................3-1

3.01. Work to be Done....................3-1
3.02. Engineer....................3-1
3.03. Contractor Staffing....................3-1
3.04. Character of Workers....................3-3
3.05. Layout of Work and Surveys....................3-3
3.05.01 Responsibility of District....................3-3
3.05.02. Responsibility of Contractor....................3-3
3.06. Changes in the Work....................3-4
3.06.01. Potential Change Orders and Change Orders....................3-4
3.06.02. Change Order Request....................3-5
3.06.03. Directed Change Orders....................3-6
3.06.04. Allowable Quantity Variations....................3-7
3.07. Change in Contract Price(s)....................3-9
3.07.01. General....................3-9
3.07.02. Cost of Extra Work....................3-11
3.07.03. Time-and-Materials Work....................3-16
3.07.04. Special Services....................3-17
3.07.05. Compensation for Time Extensions....................3-17
3.08. Change in Contract Time(s)....................3-18
3.08.01. General....................3-18
3.08.02. Inclement Weather....................3-19
3.09. Differing Conditions....................3-20
3.10. Cost Reduction Incentive....................3-21
3.11. Disputes....................3-21
3.11.01. Protest....................3-22
3.11.02. Notice of Potential Claims....................3-22
3.12. Claims....................3-23
3.12.01. Claims Less Than Fifty Thousand Dollars....................3-24
3.12.02. Claims from Fifty Thousand Dollars to Three Hundred and Seventy Five Thousand Dollars....................3-25
3.12.03. Informal Conferences....................3-25
3.12.04. Civil Actions....................3-25
3.13. Dispute Review Board....................3-26

Page

3.13.01. General 3-26
3.13.02. DRB Qualifications...3-27
3.13.03. Establishment of the DRB..3-29
3.13.04. DRB Meetings...3-30
3.13.05. Dispute Resolution..3-30
3.14 Escrow Bid Documents..3-36
3.14.01. Introduction..3-36
3.14.02. Purpose 3-37
3.14.03. Format and Contents 3-37
3.14.04. Submittal..3-37
3.14.05. Storage 3-38
3.14.06. Examination..3-39
3.14.07. Final Deposition 3-39
3.15. Partnering 3-39
3.15.01. Partnering Relationship 3-39
3.15.02. Professionally Facilitated Project Partnering 3-40

SECTION 4. LEGAL REGULATIONS AND RESPONSIBILITY 4-1

4.01. Laws to be Observed...4-1
4.02. Equal Opportunity Requirements..4-1
4.03. Employment of Labor...4-1
4.04. Prevailing Wages...4-2
4.05. Hours of Labor 4-4
4.06. Apprentices...4-4
4.07. Permits and Licenses 4-5
4.08. Patents and Copyrights 4-5
4.09. Interference With Fire Hydrants, Highways, and Fences 4-5
4.10. Preservation of Property..4-5
4.11. Contractor’s Responsibility for the Work..4-6
4.12. Indemnification..4-6
4.13. Contractor’s Insurance...4-7
4.13.01. General 4-7
4.13.02. Insurance on Work and Material...4-7
4.14. Payment of Taxes..4-7
4.15. Cooperation With Others 4-7
4.16. Property Rights in Material 4-8
4.17. Rights in Land and Improvements 4-8
4.18. Title to Material Found on the Work...4-8
4.19. Trespass 4-9
4.20. Subcontracting..4-9
4.21. Assignment of Antitrust Claims...4-9
4.22. Termination of Control 4-9
4.23. Termination of Contract 4-10
4.24. Contractor’s Cost Data 4-10
4.25. Coordination With Utilities...4-10
4.26. Asbestos-Related Work 4-11

Page

SECTION 5. PROSECUTION AND PROGRESS OF WORK 5-1

5.01. Assignment 5-1
5.02. Notice to Proceed 5-1
5.03. Commencement of Work 5-1
5.04. Professional Scheduler 5-1
5.05. Progress Schedules 5-2
5.05.01. Preliminary Progress Schedule 5-2
5.05.02. Baseline Progress Schedule 5-2
5.05.03. Revised Baseline Schedules 5-5
5.05.04. Updates to the Detailed Progress Schedules 5-5
5.05.05 Time Impact Analysis 5-6
5.05.06. "Three-Week-Look-Ahead" Schedules 5-7
5.05.07. Payment 5-7
5.06. Temporary Suspension of Work 5-7
5.07. Liquidated Damages 5-8

SECTION 6. MEASUREMENT AND PAYMENT 6-1

6.01. Schedule of Values 6-1
6.01.01. Preparation 6-1
6.01.02. Submittal 6-1
6.01.03. Revision 6-1
6.02. Application for Payment 6-2
6.02.01. Preparation 6-2
6.02.02. Submittal of Application for Payment 6-3
6.02.03. Review of Application for Payment 6-4
6.02.04. Payment 6-5
6.02.05. Withholding from Payments 6-7
6.03. Final Payment 6-8

SECTION 7. SUBMITTAL MANAGEMENT 7-1

7.01. Submittal Requirements 7-1
7.02. Master Submittal List 7-1
7.03. Timing of Submittals 7-2
7.04. Submittal Format 7-2
7.05. Submittals to be Furnished by the Contractor 7-4
7.06. Submittal Review Procedures 7-7
7.07. Substitutions 7-10
7.08. "Or Equal" Items 7-11
7.09. Sole/Single Source 7-12

SECTION 8. SAFETY AND SECURITY MANAGEMENT 8-1

8.01. Public Safety 8-1
8.02. Accident Prevention 8-1
8.03. Explosives and Stream Pollution 8-2
8.04. Fires 8-2
8.05. Excavation Safety Plans 8-2

8.06. Tunnel Construction Safety 8-3
8.07. Confined Space Program 8-3
8.08. Temporary Facilities 8-4
8.09. Injury and Illness Prevention Program....................8-5
8.10. Safety and Health Program for Hazardous Waste Operations....................8-6
8.11. Site Safety and Health Supervisor....................8-6
8.12. Site-Specific Safety and Health Plan....................8-7
8.13. Safety and Health Plan Implementation 8-9
8.14. Submittals....................8-9
8.15. Security Requirements at Job Site 8-11
8.16. General....................8-11
8.17. Identification and Badging 8-12
8.18. Background Checks....................8-13
8.19. Site Access Control 8-13
8.20. Mail and Postal Deliveries to the Project Site....................8-14
8.21. Productivity Lost for Noncompliance With Security Measures 8-14
8.22. Payment....................8-14

SECTION 9. QUALITY MANAGEMENT....................9-1

9.01. General Quality Requirements 9-1
9.02. District Quality and Environmental Policy Training....................9-1
9.03. Contractor’s Quality Control Program....................9-1
9.04. Quality Coordination Meetings....................9-4
9.05. Documented Quality Control Records 9-6
9.06. Inspection and Daily Reports....................9-6
9.06.01. Inspection 9-6
9.06.02. Daily Inspection Reports....................9-8
9.07. Plant Inspection 9-9
9.08. Sampling of Material....................9-10
9.09. Testing....................9-10
9.10. District Quality Assurance....................9-12
9.10.01 Testing by the District 9-12
9.10.02 Defective Work 9-12
9.11. Plumbing and Piping Quality....................9-13
9.12. Control of Materials and Equipment 9-13
9.12.01. Source of Material and Equipment 9-13
9.12.02. Product Data and Samples....................9-14
9.12.03. Transportation and Delivery....................9-14
9.12.04. Storage and Protection of Material 9-15
9.12.05. Maintenance and Protection of Installed or Stored Equipment....................9-16
9.13. District Furnished Material....................9-17
9.14. Final Inspection of Work 9-17

SECTION 10. ENVIRONMENTAL....................10-1

10.01. Good Neighbor Requirements....................10-1
10.02. Storm Water Pollution Prevention Plan 10-1
10.02.01. Storm Water BMPs....................10-2
10.02.02. Regulatory Fines....................10-3

10.03. Water Pollution Discharges and Remedies 10-3
10.04. Water Quality 10-3
10.05. Burial Sites 10-4
10.06. Cultural Resources (Archeological Discovery) 10-4
10.07. Noise Pollution and Vibration 10-5
10.08. Air Pollution 10-6
10.09. Spillage and Dust Control 10-6
10.10. Traffic Control 10-8
10.11. Regulated Material Management 10-9
10.11.01. Storage of Regulated Material 10-9
10.11.02. Regulated Material Discharges or Releases 10-10
10.11.03. Hazardous Waste 10-11
10.12. Non-regulated Materials 10-12
10.12.01. Disposal at Other than State-Permitted Landfills 10-12
10.13. Imported Earthfill Material 10-13
10.14. Migratory Birds 10-13
10.14.01. Scope of Work 10-14
10.14.02. Migratory Bird Surveys 10-15
10.14.03. Migratory Bird Monitoring 10-15
10.14.04. Protective Buffer Zones 10-16
10.14.05. Exclusion Devices 10-17
10.14.06. Nest Prevention 10-17
10.14.07. Submittals 10-18
10.15. Other Wildlife and Fish Species 10-19
10.16. Sensitive Plants and Vegetation 10-19
10.17. Proper Pruning Techniques for Woody Vegetation Removal 10-19

SPECIAL PROVISIONS

SECTION 11. WORK AND SCHEDULE OF WORK 11-1

11.01. Summary of Work 11-1
11.02. Drawings 11-1
11.03. Site Maintenance and Clean-Up 11-1
11.04. Time Allowance for Completion of Work 11-2
11.05. Excusable Inclement Weather Delays 11-2
11.06. Schedule of Work 11-2
11.06.01. Preliminary Schedule of Work 11-3
11.06.02. Detailed Schedule of Work 11-3
11.06.03. Payment 11-6
11.07. Liquidated Damages 11-6
11.08. Submittals and Withholding of Partial Payment 11-6
11.09. Fines 11-7
11.10. Bonus (NOT USED) 11-7

SECTION 12. GENERAL REQUIREMENTS 12-1

12.01. Abbreviations and Acronyms (NOT USED) 12-1
12.02. Definition of Key Terms (NOT USED) 12-1
12.03. Site Investigation 12-1

12.04. District-Furnished Reports 12-1
12.04.01. Geotechnical Reports 12-1
12.04.02. Environmental Report (NOT USED) 12-1
12.04.03. Hazardous Materials Investigation Report (NOT USED) 12-1
12.04.04. Archeological Findings Report (NOT USED) 12-1
12.04.05. As-Built Drawings (NOT USED) 12-1
12.05. Contractor's Engineering and Design 12-1
12.05.01. Seismic Design Criteria 12-1
12.05.02. Wind Design Criteria 12-2
12.05.03. Hydraulic Design Criteria (NOT USED) 12-2
12.05.04. Truck Loading (NOT USED) 12-2

SECTION 13. SPECIAL REQUIREMENTS 13-1

13.01. Engineer 13-1
13.02. Project Signs 13-1
13.02.01. Payment 13-2
13.03. Office Facilities (NOT USED) 13-2
13.03.01. Engineer's Office 13-2
13.03.02. Contractor's Office 13-2
13.03.03. Removal and Disposal 13-2
13.03.04. Payment 13-2
13.04. Use of District Facilities (NOT USED) 13-2
13.05. Temporary Utilities 13-2
13.05.01. Payment 13-3
13.06. Staging Area 13-3
13.06.01. Payment 13-4
13.07. District Furnished Materials and Equipment 13-4
13.07.01. Assignment of Contract for District-Procured Materials (NOT USED) .. 13-4
13.08. Salvaged Materials and Equipment (NOT USED) 13-4
13.09. Tools and Spare Parts (NOT USED) 13-4
13.10. Operation and Maintenance Documents (NOT USED) 13-4
13.11. Maintenance of Record Documents 13-5
13.11.01. Record Drawings (Marked-Up Drawings) 13-5
13.12. Emergency Work (NOT USED) 13-6
13.13. Dispute Review Board (NOT USED) 13-6
13.14. Escrow Bid Documents (NOT USED) 13-6
13.15. Partnering (NOT USED) 13-6
13.16. Insurance 13-6
13.16.01. Required Coverages 13-7
13.16.02. General Requirements 13-8
13.17. Web-Based Construction Document Management 13-10
13.17.01. Summary 13-10
13.17.02. Computer and Connectivity Requirements 13-11
13.17.03. Contractor Responsibility 13-12
13.17.04. Training 13-13
13.17.05. EADOC Utilization 13-13

SECTION 14. GENERAL COORDINATION 14-1

14.01. Meeting Requirements 14-1
14.01.01. Preconstruction Meeting 14-1
14.01.02. Progress Meetings 14-1
14.01.03. Coordination and Special Meetings 14-2
14.02. Integration and Coordination With District Operations (NOT USED) 14-2
14.03. Coordination of Work Activities 14-2
14.03.01. Work by Others 14-2
14.03.02. Coordination With Others 14-2
14.04. Construction Survey (NOT USED) 14-2
14.05. Public Notification 14-2

SECTION 15. WORK CONSTRAINTS AND SITE RESTRICTIONS 15-1

15.01. General Work Constraints 15-1
15.02. Utilities 15-1
15.02.01. Utility Coordination 15-2
15.02.02. Protection of Existing Utilities 15-2
15.02.03. Utility Installation/Relocation by Others (NOT USED) 15-3
15.03. Protection of Existing Improvements 15-3
15.03.01. Survey Monuments 15-3
15.04. Pre-Construction Surveys 15-3
15.04.01. Pre-Construction Survey Within the Project Limits 15-3
15.04.02. Surveys of Properties in the Vicinity of the Work (NOT USED) 15-4
15.05. Rights of Way 15-4
15.05.01. District-Furnished Right of Way 15-4
15.05.02. Contractor-Furnished Right of Way 15-4
15.05.03. Temporary Construction Easement (TCE's) (NOT USED) 15-4
15.06. Access to Properties Owned by Others 15-5
15.07. Access to Job Site 15-5
15.08. Access Roads Within Job Site 15-5
15.09. District Use of Facilities/Premises Within the Work Area 15-6

SECTION 16. SAFETY AND SECURITY 16-1

16.01. Safety 16-1
16.01.01. Temporary Facilities 16-2
16.02. Safety and Health Program (NOT USED) 16-2
16.03. Security Requirements at Job Site 16-2
16.03.01. General 16-2
16.03.02. Identification and Badging (NOT USED) 16-3
16.03.03. Background Checks 16-3
16.03.04. Site Access Control (NOT USED) 16-3
16.03.05. Mail and Postal Deliveries to the Project Site (NOT USED) 16-3
16.03.06. Productivity Lost for Non-Compliance with Security Measures 16-3
16.04. Payment 16-3

Page

SECTION 17. PERMITS AND REGULATIONS 17-1

17.01. Permits and Agreements 17-1
17.01.01. District Obtained Permits 17-1
17.01.02. Contractor Obtained Permits 17-1
17.01.03. Operation Regulations (NOT USED) 17-1
17.02. Hours of Work 17-1
17.03. Noise Pollution and Vibration 17-2
17.03.01. Noise 17-2
17.03.02. Vibration Monitoring (NOT USED) 17-2
17.04. Air Pollution 17-2
17.05. Spillage and Dust 17-2
17.06. Traffic Control 17-2
17.07. Truck Traffic and Hauling 17-2
17.07.01. Truck Arriving Early, Truck Idling and Queuing 17-3
17.08. Parking 17-3
17.09. Discovery of Archeological Artifacts and Human Remains 17-3
17.10. Aesthetic Requirements (NOT USED) 17-3
17.11. Recreation (NOT USED) 17-3
17.12. Utilities and Service System (NOT USED) 17-3
17.13. Payment 17-3

SECTION 18. ENVIRONMENTAL 18-1

18.01. Compliance with NPDES General Permit 18-1
18.01.01. SWPPP (NOT USED) 18-1
18.01.02. Storm Water BMPs (NOT USED) 18-1
18.01.03. Risk Level 1 Requirements (NOT USED) 18-1
18.01.04. Risk Level 2 Requirements (NOT USED) 18-1
18.01.05. Risk Level 3 Requirements (NOT USED) 18-1
18.01.06. Regulatory Fines (NOT USED) 18-1
18.01.07. Payment (NOT USED) 18-1
18.02. Other Discharge Permits (NOT USED) 18-1
18.03. BMP Action Plan 18-1
18.03.01 Storm Water BMP 18-2
18.03.02. Payment 18-2
18.04. Water Pollution Nuisance 18-2
18.05. Regulated Material Management 18-3
18.05.01. Asbestos Management 18-3
18.05.02. Lead Management (NOT USED) 18-3
18.06. Solid Materials Management 18-3
18.06.01. Definitions 18-3
18.06.02. Construction and Demolition Waste Management 18-4
18.06.03. Post-Consumer Recycled Content Requirements (NOT USED) 18-5
18.07. Migratory Birds 18-5
18.07.01. Regulatory Requirements 18-5
18.07.02. Scope of Work 18-5
18.07.03. Contractor Biologist (NOT USED) 18-6
18.07.04. General Nesting Seasons 18-6
18.07.05. Migratory Bird Surveys 18-6

18.07.06. Protective Buffer Zones 18-6
18.07.07. Installation and Maintenance of Exclusion Devices 18-7
18.07.08. Vegetation Management for Nest Prevention (NOT USED) 18-8
18.07.09. Monitoring 18-8
18.07.10. Submittals (NOT USED) 18-8
18.07.11. Payment 18-8
18.08. Other Wildlife and Fish Species (NOT USED) 18-8
18.09. Environmental Awareness Training 18-8
18.10. Payment 18-8

SECTION 19. QUALITY ASSURANCE REQUIREMENTS 19-1

19.01. Submittal Procedures 19-1
19.01.01. General Requirements 19-1
19.01.02. Shop Drawings, Product Data, and Samples 19-2
19.02. Quality Control 19-3
19.02.01. Materials, Product, Equipment, and Workmanship 19-3
19.02.02. Inspection 19-4
19.02.03. Sampling of Materials 19-4
19.02.04. Testing Services (NOT USED) 19-4
19.02.05. Testing by District 19-4
19.02.06. Plumbing and Piping Quality 19-5
19.02.07. Right of Rejection 19-5
19.02.08. Contractor’s Quality Assurance/Quality Control Requirements 19-5
19.03. Product Requirements 19-5
19.03.01. General Product Requirements 19-5
19.03.02. Transportation and Delivery 19-6
19.03.03. Storage and Protection 19-6

SECTION 20. PAYMENT PROCEDURES 20-1

20.01. Schedule of Bid Items 20-1
20.01.01. General Requirements 20-1
20.01.02. Description of Bid Items 20-1
20.02. Progress Payments and Schedule of Values 20-5
20.02.01. Preparation 20-6
20.02.02. Submittals 20-7
20.02.03. Preliminary Schedule of Values 20-7
20.03. Cost Summaries 20-7
20.04. Partial Payment—Inclusion of Materials On-Site 20-7
20.05. Applications for Payment 20-8
20.05.01. General 20-8
20.05.02. Substantiating Data 20-9
20.05.03. Submittals 20-9

SECTION 21. CONTRACT CLOSEOUT 21-1

21.01. Project Completion and Acceptance 21-1
21.01.01. Use Before Acceptance 21-1

21.01.02. Contractor's Responsibility to Manage Incomplete and Deficient Work 21-1
21.01.03. Milestone Completion Preliminary Final Inspection 21-2
21.01.04. Milestone Completion Final Inspection 21-3
21.01.05. Project Completion 21-3
21.01.06. Acceptance of Work....21-4
21.02. Guaranty and Guaranty Bond....21-4
21.02.01. Guaranty....21-4
21.02.02. Guaranty Bond....21-5
21.03. Training....21-9
21.04. Testing and Facility Startup 21-9
21.05. Submission of Closeout Items 21-9
21.05.01. Record Drawings and Specifications....21-9
21.05.02. Closeout Documents 21-9
21.05.03. Keys (NOT USED)....21-10
21.06. Final Cleaning....21-10
21.06.01. Schedule for Final Cleaning....21-10
21.06.02. Structures (NOT USED) 21-10
21.06.03. Streets, Roadways, Concrete Slabs, Sidewalks, and Paved Areas 21-10
21.06.04. Storm Drainage Facilities....21-10
21.06.05. Unpaved Areas....21-10

TECHNICAL PROVISIONS

SECTION 22 MOBILIZATION 22-1
SECTION 23 SAMPLING AND RECORDS....23-1
SECTION 24 SONIC BOREHOLE DRILLING....24-1
SECTION 25 DIRECT OR REVERSE ROTARY BOREHOLE DRILLING 25-1
SECTION 26 BOREHOLE GEOPHYSICAL TESTING 26-1
SECTION 27 WELL CASING 27-1
SECTION 28 WELL SCREEN....28-1
SECTION 29 ARTIFICIAL FILTER PACK 29-1
SECTION 30 ANNULAR SEALING....30-1
SECTION 31 PLUMBNESS AND ALIGNMENT....31-1
SECTION 32 WELL DEVELOPMENT....32-1
SECTION 33 WELLHEAD COMPLETION 33-1
SECTION 34 BOREHOLE AND WELL DESTRUCTION (**NOT USED**) 34-1
SECTION 35 PAVING AND SURFACING 35-1
SECTION 36 SOUND CONTROL 36-1
SECTION 37 DISPOSAL OF DRILLING FLUIDS AND CUTTINGS 37-1
SECTION 38 DISCHARGE WATER 38-1

APPENDIX A

Agreement
Payment Bond
Performance Bond
Instructions for Completing SBE Utilization Report
Sample Small/Micro Business Enterprises (SBE) Utilization Report
Escrow Agreement for Security Deposit in Lieu of Retention

Page

APPENDIX B
Map and Construction Plan for the Construction of John D. Morgan Park Monitoring Wells Project

APPENDIX C
Guidelines for Contractor's As-Built Mark Ups

APPENDIX D
Solid Materials Management Report

APPENDIX E
Migratory Bird Permit Memorandum

THIS PAGE INTENTIONALLY LEFT BLANK

STANDARD PROVISIONS

THIS PAGE INTENTIONALLY LEFT BLANK

STANDARD PROVISIONS

SECTION 1. DEFINITIONS

Whenever in these Specifications and other Contract documents the following abbreviations and terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISI	American Iron and Steel Institute
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWG	American Wire Gage
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
CAEPA	California Environmental Protection Agency
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CWA	Federal Clean Water Act
DHS	California Department of Health Services
HSC	California Health and Safety Code
IEEE	Institute of Electrical and Electronics Engineers
MSDS	Material Safety Data Sheet
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPDES	National Pollution Discharge Elimination System
RWQCB	California Regional Water Quality Control Board
SAE	Society of Automotive Engineers
SWRCB	California State Water Resources Control Board
UBC	Uniform Building Code
UL	Underwriters Laboratories
USEPA	United States Environmental Protection Agency
WCLB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association

Acceptance: The formal written acceptance by the District of a contract which has been completed in all respects in accordance with the Drawings and Specifications and any modifications thereof previously approved.

Addendum: A change in the Specifications or Drawings issued prior to the opening of Proposals.

Approved, Directed, Ordered, or Required: Whenever these words or their derivatives are used, it is the intent, unless otherwise clearly stated, that approval or direction by the Engineer is indicated.

Article: A numbered portion of a title section of the Specifications.

Bid: See Proposal, Article 3.03

Bidder: Any individual, firm, partnership, corporation, or combination thereof, submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.

Board, Board of Directors: The Board of Directors of the District.

Certified Hazardous Materials Testing Laboratory: A laboratory certified by the California Department of Health Services to perform specific chemical and physical analysis for hazardous materials.

Certified Industrial Hygienist: A professional who is certified by the American Board of Industrial Hygienists as trained to evaluate safety and health hazards and determine safety measures necessary for personnel working under hazardous conditions.

Claim: A separate demand by the Contractor for (A) a time extension, (B) payment of money or damages arising from work done by or on behalf of Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the Contractor is not otherwise entitled to, or (C) an amount of payment which is disputed by the District.

Code: The terms Government Code, Labor Code, etc. refer to codes of the State of California.

Construction Equipment: Equipment used for the performance of work but not incorporated into the project.

Contract: The written agreement between Contractor and District including the Notice to Bidders, Proposals, Drawings, Specifications, Contract Bonds, Contract change orders, and Addenda.

Contract Prices: The prices for the work set forth in a contract.

Contractor: The entity or person entering a contract with the District.

Controlling Item of Work: Any feature or combination of features of the work considered at the time by the Engineer, which if delayed, will delay the time of completion of a contract.

Days: Calendar days, unless otherwise designated.

***Designated Engineer**:* A Deputy Operating Officer of the District as identified in Article 13.01 of the Special Provisions.

District: The Santa Clara Valley Water District.

Drawings: The official drawings, working drawings, detail drawings, and supplemental drawings, or reproductions thereof, which show the location, character, dimensions, and details of the work to be done, and which are to be considered as part of a contract.

Engineer: The Designated Engineer, acting either directly, or through a properly designated representative, assumes all duties and responsibilities, and has all rights and authority, in accordance with the Contract Documents.

Equipment: Equipment incorporated or to be incorporated into the project.

Fixed Costs: Any necessary labor, material, and equipment costs directly expended on the item or items under consideration which remain constant regardless of the quantity of work done.

Hazardous Material: (A) Any substance, product, waste or other material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to any federal, state or local statute, law, ordinance, resolution, code, rule, regulation, order or decree regulating, relating to, or imposing liability (including, but not limited to response, removal, and remediation costs) or standards of conduct or performance concerning any hazardous, toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic or as otherwise dangerous waste, substance or material; (B) any substance, product, waste, or other material of any nature whatsoever whose presence in and of itself may give rise to liability under any of the above statutes or under any statutory or common law theory based on negligence, trespass, intentional tort, nuisance, strict or absolute liability or under any reported decisions of a state or federal court; (C) any substance without limitation, which contains petroleum or crude oil, including but not limited to, petroleum and petroleum products.

Hazardous Waste: Any substance or material, as defined in the California Hazardous Waste Control Act, Health and Safety Code Section 25, or the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.

Liquidated Damages: The amount stated in the Specifications, as provided in Government Code Section 53069.85, to be paid to the District or to be deducted from any payments due or to become due the Contractor for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the Specifications.

Materials: Materials incorporated or to be incorporated into the project.

Milestone: A specified portion of the work identified in the Contract as a Milestone.

Milestone Completion: The date determined by the District when the Milestone is complete. Milestone Completion does not constitute Acceptance but does establish the completion date of the Milestone for the purpose of assessment of Liquidated Damages, if any, associated with the Milestone.

Personnel Protection: Equipment and procedures which minimize human exposure to regulated materials, hazardous materials, hazardous wastes, or unsafe situations.

Plans, Construction Plans: The Drawings.

Project: The erection, construction, alteration, repair, or improvement to be accomplished under the Contract.

Project Completion: Project Completion is the stage at which the whole Work is complete per the Contract documents, and the Engineer has performed the final inspection and issued a Project Completion letter.

Reasonable Accuracy: Within the tolerances as shown on the Drawings or indicated in the Specifications.

Regulated Material: Any substance or combination of substances for which federal, state, or local regulations require special management, storage, disposal, or handling practices. This shall include, but not be limited to, materials defined as: Hazardous Materials and Waste; Designated Wastes (CCR, Title 23, Section 23-2522); and Special Waste (CCR, Title 22, Section 22-66195).

Remediation: Restoration of the contaminated soil, groundwater, or other materials to its pre-contaminated level or to a level acceptable to the District and local, state, and federal agencies.

Responsible Bidder: Pursuant to California Public Contract Code Section 1103 "Responsible bidder," as used in this part, means a bidder who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity, and experience to satisfactorily perform the public works contract."

Subcontractor: An entity or person contracting with the Contractor or another subcontractor to perform any portion of work.

Specifications: The directions, provisions, and requirements contained in the Standard Provisions, Special Provisions, and Technical Provisions.

Ton: 2,000 pounds avoirdupois.

Work: That which is constructed or done pursuant to the requirements of the Contract to accomplish the Project including, but not limited to, providing labor, materials, equipment, and information documentation.

SECTION 2. INTERPRETATION OF CONTRACT

2.01. Precedence of Contract

A. In resolving conflicting requirements between the Contract Documents order of precedence shall be as follows:

1. Change orders
2. Agreement
3. Addenda
4. Special Provisions
5. Technical Provisions
6. Drawings
7. Standard Provisions
8. State Specifications

B. With reference to the Drawings:

1. Figures govern over scaled dimensions
2. Detail drawings govern over general drawings

2.02. Clarification of Contract

A. All corrections of readily apparent errors or omissions in the Contract may be made by the Engineer when such corrections are necessary for the proper fulfillment of their intention as construed by the Engineer. The misplacement, addition, or omission of any word, letter, figure, or punctuation mark which has no substantive legal effect will in no way change the due spirit, intent, or meaning of these Specifications.

B. Any part of the work not shown on the Drawings or described in these Specifications but which is reasonably or ordinarily implied by either, shall be furnished and installed by the Contractor as if fully described in these Specifications and shown upon the Drawings.

C. Should it appear that the work to be done or any of the matters relative thereto is not sufficiently detailed or explained in the Specifications or on the Drawings, or if the Contractor discovers during the course of the work any discrepancies between the Contract Drawings and conditions in the field, or any errors or omissions in the Contract or in the layout given by stakes, points, or instructions, the bidder or Contractor shall apply in writing to the Engineer for such further explanations as may be necessary and shall conform to them as part of the Contract. In the event of any doubt or questions arising respecting the true meaning of the Contract, reference shall be made in writing to the Engineer, whose decision thereon shall be final. Any work done after such discovery until authorized by the Engineer, will be done at the Contractor’s risk.

2.03. State Specifications and Plans

A. Unless otherwise stated, State Specifications and Plans referred to in these Specifications shall be the latest edition of the State of California Department of

Transportation Standard Specifications and Standard Plans. When specifically stated to follow the State Specifications and Plans for an item, the work set forth in these Contract documents shall be accomplished in accordance with the appropriate provisions and details of the State Standard Specifications and Standard Plans. Said Specifications and Plans are herein referred to as the State Specifications and Plans and are by reference made a part of these Specifications the same as though set out in full, as to the provisions requiring compliance. In the event of conflict between the State Standard Specifications or the State Standard Plans and the Standard, Special, or Technical Provisions of these Specifications or the Drawings, these Specifications and Drawings shall apply.

SECTION 3. PROPOSAL REQUIREMENTS AND CONDITIONS

3.01. Approximate Estimate

A. The quantities given in the Notice to Bidders, Proposal, and Contract forms are approximate only, being given as a basis for the comparison of Proposals, and the District does not, expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work, as may be deemed necessary or advisable by the Engineer.

3.02. Examination of Drawings, Specifications, and Site of Work

A. The bidder shall examine carefully the site of the work contemplated and the Proposal, Drawings, Specifications, and Contract forms therefor. The submission of a Proposal will be conclusive evidence that the bidder has investigated and is fully aware of the conditions and difficulties to be encountered, of the character, quality, and quantities of work to be performed and materials to be furnished, and of the requirements of the Proposal, Drawings, Specifications, and other Contract documents.

B. Where investigation of subsurface conditions has been made by the District in respect to foundation, characterization of soils, groundwater, or other design, bidders may inspect the records of the District as to such investigation, including examination of samples and drill cores, if any. When logs of test boring showing a record of the data obtained by the District's investigation of subsurface conditions are made available, said logs represent only the opinion of the District as to the character of material encountered by it in its test borings and are made available only for the convenience of bidders.

C. Note that the District investigation of subsurface conditions is made for the purpose of design. The District assumes no responsibility whatever in respect to the sufficiency of test borings, or accuracy of the log of test borings, or other preliminary investigations, or of the interpretation thereof. There is no guarantee expressed or implied that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unforeseen developments may not occur.

D. Making such information available to bidders is not to be construed in any way as a waiver of the provisions of Article 3.02, and bidders must satisfy themselves through their own investigations, analysis, and interpretations as to conditions to be encountered.

E. No information derived from such inspection of records or preliminary investigations made by the District, or from the Engineer, or from assistants, or from the maps, Specifications, profiles, or Drawings will in any way relieve the Contractor from any risk or from properly fulfilling all the terms of the Contract. Records of such preliminary investigations as may have been made by the District may be inspected at the office of the District, 5750 Almaden Expressway, San Jose, California 95118, or at such other locations as may be stated in the Notice to Bidders.

3.03. Proposal Form

A. The Proposal Form, when filled out by the Bidder and executed, shall be submitted as the Bidder's Proposal. All Proposals shall show the prices proposed in figures in the spaces provided, and shall be signed by the Bidder. The Bidder shall fill out all blanks in the Proposal Form as therein required.

B. Payment for the various items listed in the Proposal Form shall constitute full compensation for furnishing all plant, labor, equipment, appliances, and materials, and performing all operations required to complete all work in conformity with the Drawings and Specifications. All costs for work not specifically mentioned in the Proposal Form shall be included in the Contract prices for the items listed.

C. In the case of unit basis items, the amount set forth under the "Total" column shall be the extension of the item unit price bid on the basis of the estimated quantity for the item.

D. In case of discrepancy between the item unit price and the total price set forth for the item, the item unit price shall prevail; provided, however, that if the amount set forth as an item unit price is ambiguous, unintelligible, or uncertain for any cause, or is omitted, or in the case of unit basis items, is the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1. As to lump sum items, the amount set forth in the "Total" column shall be the item price.

2. As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the item unit price.

3.04. Queries on Bidding

A. Questions regarding the Specifications or Drawings or any other portion of the Contract, or any addendum thereto shall be directed to the Designated Engineer of the Santa Clara Valley Water District, 5750 Almaden Expressway, San Jose, California 95118, in writing. No interpretation of the meaning of the Specifications, Drawings, or other prebid documents will be made to any bidder orally. Any written queries received later than 10 days before the bid due date may not be answered.

3.05. Rejection of Proposals

A. Proposals may be rejected if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind. Proposals in which the prices, in the opinion of the District, are unbalanced, may be rejected.

B. When proposals are signed by an agent, other than the officer or officers of a corporation authorized to sign contracts on its behalf, or a member of a partnership, a written authorization or Power of Attorney should be on file with the District prior to opening proposals or submitted with the Proposal; otherwise, the Proposal may be rejected as irregular and unauthorized.

C. “(a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.”

“(b) Notice of the requirement described in subdivision (a) shall be included in all bid invitations and public works contracts, and a bid shall not be accepted nor any contract or subcontract entered into without proof of the contractor or subcontractor’s current registration to perform public work pursuant to Section 1725.5.”

“(c) An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that any of the following apply:

(1) The subcontractor is registered prior to the bid opening.

(2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.

(3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.”

3.06. Proposal Guarantee

A. All proposals shall be presented under sealed cover and accompanied by one of the following forms of bidder’s security; cash, a cashier’s check, certified check, or a bidder’s bond executed by an admitted surety, made payable to the District. The security shall be in an amount equal to at least 10 percent of the total Contract price in the Proposal. A proposal will not be considered unless one such form of bidder’s security is enclosed with it.

B. A bidder's bond will not be accepted unless it substantially conforms to the bond form included with the Proposal form and is properly filled out and executed. If desired, the bond form included therein, properly filled out as directed, may be executed and used as the bidder's bond. Blanks conforming to this form may be obtained from the District.

3.07. Withdrawal of Proposals

A. Any proposal may be withdrawn at any time prior to the time fixed in the Notice to Bidders for the opening of proposals only by written request for the withdrawal of the Proposal filed with the Clerk of the Board of Directors. The request shall be executed by the bidder or duly authorized representative. The withdrawal of a proposal does not prejudice the right of the bidder to file a new proposal.

3.08. Joint Proposals

A. If two or more bidders desire to bid jointly on a project, they shall file an affidavit of joint venture with the District in the form approved by the District, and such affidavit of joint venture will be valid only for the specified project for which it is filed. If such affidavit of joint venture is not filed as aforesaid and approved by the District prior to the time for opening proposals on the specific project for which it is submitted, a joint proposal submitted by the same bidders may be disregarded.

3.09. Disqualification of Bidders

A. Submittal of more than one proposal form from an individual, firm, partnership, corporation, or a combination thereof under the same or different names, will not be considered. If there is reason for believing that collusion exists among the bidders, none of the participants in such collusion will be considered for award of this Contract.

3.10. Addendum

A. Addenda may be issued prior to opening of proposals and shall be deemed a part of the original Specifications and Drawings. All such additions or changes shall be considered by the bidder in preparation of the Proposal. Addendum notification(s) will be sent to each planholder at the e-mail address provided by the Contractor for the planholders' list and addenda will be posted on the District's website at www.valleywater.org/Programs/Construction.aspx.

3.11. Guaranty

A. The Contractor may be required to furnish a written guaranty covering certain items of material and equipment for varying periods of time from the date of acceptance of the Contract. The material and equipment to be guaranteed, the form of guaranty, and the time limit of the guaranty will be specified in the Special Provisions. Said guaranty shall be signed and delivered to the Engineer before final payment will be made. Upon completion of the Contract, the amounts of the

Contract bonds required in Article 4.03 may be reduced to conform to the total amount of the Contract bid prices for the items to be guaranteed and this amount shall continue in full force and effect for the duration of the guaranty period.

B. Guarantee periods shall commence on the date equipment or material is placed into service at the direction of the District. In the event such items are not placed into service prior to partial or final acceptance of the project, the guarantee period will commence on the date of such acceptance.

3.12. Bid Protest

A. Any Bid protest relating to the form or content of the Bid documents must be submitted in writing to the Designated Engineer identified in Article 13.01 of the Special Provisions. The protest must be received before 5 p.m. three (3) business days in advance of the Bid opening. Any Bidder who fails to submit a protest before the Bid opening deadline will be deemed to have waived any protest to the form or content of the Bid documents.

B. Any Bid protest unrelated to Article 3.12.A. must be submitted in writing to the Designated Engineer. The protest must be received before 5 p.m. on the third business day following Bid opening.

C. The protest document must contain a complete statement of the basis for the protest. The protest must refer to the specific portion(s) of the Bid documents that form the basis for the protest. The protest must include the name, address, and telephone number of the person representing the protesting party.

D. The Designated Engineer’s final decision on a protest will be issued in writing no later than ten (10) calendar days following receipt of the protest.

SECTION 4. AWARD OF CONTRACT

4.01. Award of Contract

A. The District reserves the right to reject or waive irregularities, in any and all proposals, or in the bidding procedures.

B. The Contract, if awarded, will be to a responsible bidder, submitting the lowest responsive bid. The award, if made, will be within 45 days after the opening of the proposals. If the lowest responsible bidder refuses or fails to execute the Contract, the award may be made to the second lowest responsible bidder. The award, if made, will be within 75 days after the opening of the proposals. If the second lowest responsible bidder refuses or fails to execute the Contract, the Contract may be awarded to the third lowest responsible bidder. The award, if made, will be made within 105 days after the opening of the proposals. The periods of time specified above within which the award of Contract may be made shall be subject to extension for such further period as may be agreed upon in writing between the District and the bidder concerned.

4.02. Return of Bidder Security

A. No later than 60 days after the award of the Contract to the responsible bidder submitting the lowest responsive bid, the security of the unsuccessful bidder(s) will be returned, except for bidder’s bonds and any guarantees which have been forfeited.

4.03. Contract Bonds

A. The Contractor shall furnish in the forms attached hereto, a performance bond and a payment bond executed by both the Contractor and the sureties, each equal to 100 percent of the contract sum.

B. Should any surety or sureties be deemed unsatisfactory at any time by the District, notice will be given the Contractor to that effect, who shall forthwith substitute a new surety or sureties satisfactory to the District. No further payment shall be deemed due or will be made under this Contract until the new sureties shall qualify and be accepted by the District.

4.04. Execution of Contract

A. The Contract Agreement must be signed by the responsible bidder submitting the lowest responsive bid and returned, together with the Contract bonds and insurance documents, within ten (10) days, of District’s Notice of Contract Award letter, not including Sundays and legal holidays.

B. Formation of a Contract between the parties requires accomplishment of the following: (1) execution of the Agreement by Contractor; (2) submission by Contractor, and acceptance by District of the required Contract Bonds, and insurance coverages and documents; and (3) execution of the Agreement by

District. No Contract is formed until these three elements have been accomplished to the satisfaction of the District.

4.05. Failure to Execute Contract

A. Failure to execute the Agreement after Contract award and to file acceptable bonds and insurance documents as provided herein, within ten (10) days, not including Sundays and legal holidays, shall be just cause for the District's annulment of the award and forfeiture of the bidder's security.

SECTION 5. SCOPE OF WORK

5.01. Work to Be Done

A. The work to be done consists of furnishing all labor, methods or processes, implements, tools, machinery, construction equipment, materials of any kind, and installed manufactured equipment, except as otherwise specified herein, to be furnished by the District or from sources provided by the District, which are required to construct in a good and worker-like manner all the work herein specified.

5.02. Final Cleanup

A. Before final inspection the Contractor shall clean the premises, and unless otherwise specified, remove all rubbish, excess materials, falsework, temporary structures, and equipment. All parts of the work shall be left in a neat and presentable condition to the satisfaction of the Engineer.

5.03. Change in Work

A. The District may, at any time or from time to time, order additions, deletions, or revisions in the work; these will be authorized by a written order issued by the Engineer and/or by a change order. Upon receipt of any such document, the Contractor shall promptly proceed with the work involved which will be performed under the applicable conditions of the Contract.

B. Changes in the Contract price shall be determined in accordance with Article 5.04. Changes in the Contract time shall be determined in accordance with Article 5.05.

C. If the District and the Contractor are unable to agree as to the extent, if any, of an increase or decrease in the Contract price or an extension or shortening of the Contract time that would be required as a result of a written order, a claim may be made therefor as provided in Articles 5.08 or 5.09.

D. The Contractor shall not be entitled to an increase in the Contract price nor an extension of the Contract time with respect to any work performed that is not required by the Contract, except in the case of an emergency, and except in the case of uncovering work as provided in Article 9.07.

E. The District and the Contractor shall execute appropriate change orders covering:

1. Changes in the work which are ordered by the District pursuant to paragraph A above;

2. Changes in the Contract price and/or Contract time which are agreed to by the parties; or

3. Any other changes agreed to by the parties.

5.03.01. Allowable Quantity Variations

A. **General**: Increases or decreases in the quantity of a Contract item of work will be determined by comparing the actual pay quantity of an item of work with the approximate quantity in the listing of the bid items contained in the Proposal.

  1. If the actual pay quantity of an item of work varies from the approximate quantity by 25 percent or less, payment will be made for the actual quantity of work performed at the Contract unit price listed in the Proposal.

  2. If the actual pay quantity of an item of work varies from the approximate quantity by more than 25 percent, in the absence of an executed Contract Change Order specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with Article 5.03.01.A.1, or Article 5.03.01.A.2.

     a. **Increases of More Than 25 Percent**: If the actual pay quantity of an item of work exceeds the approximate quantity by more than 25 percent, the amount of work in excess of 125 percent of the approximate quantity will be paid for by adjusting the Contract unit price. Such adjustment of the Contract unit price will be the positive or negative difference between the Contract unit price and the actual unit cost of the total pay quantity of the item. At the sole option of the Engineer, the actual unit cost of the work involved in such excess will be determined in accordance with Article 5.04.01.C.2 (by mutual acceptance of a lump sum amount) or Article 5.04.01.C.3 (cost of work, based on time and materials).

        (1) If the cost of an item of work includes fixed costs, the fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the approximate quantity at the Contract unit price for the item and in computing the actual unit cost, the fixed costs will be excluded.

        (2) When the compensation payable for the quantity of work performed in excess of 125 percent of the approximate quantity is less than $5,000 at the Contract unit price, no adjustment in the Contract unit price will be made unless requested in writing by the Contractor within 14 days from the date the Contractor became aware, or should have reasonably become aware, of the increase in quantity.

     b. **Decreases of More Than 25 Percent**: If the actual pay quantity of an item of work is less than 75 percent of the approximate quantity, an adjustment in compensation will not be made unless the Contractor makes a request in writing within 14 days from the date the Contractor became aware, or should have reasonably become aware, of the decrease in quantity. If the Contractor makes a request, the actual pay quantity of said item of work performed will be paid for by adjusting the Contract unit price. Such adjustment of the Contract unit price will be the positive or negative difference between the Contract unit price and the actual unit cost of the total pay quantity of the item, including fixed costs. At the sole option of the Engineer, payment for the actual quantity of work will be made in accordance with Article 5.04.01.C.2 (by mutual acceptance of a lump sum amount) or Article 5.04.01.C.3 (cost of work based on time and materials).

(1) Payment for the actual pay quantity of such item of work will in no case exceed the payment which would have been made for the performance of 75 percent of the approximate quantity of such item at the Contract unit price.

B. **Eliminated Items**: If any Contract item of the work is eliminated in its entirety, payment will be made to the Contractor for the actual cost incurred in connection with the eliminated Contract item if incurred prior to the date of notification in writing by the Engineer of such elimination.

1. If acceptable material is ordered by the Contractor for an eliminated Contract item prior to the date of notification of such elimination by the Engineer, and if orders for such material cannot be canceled, payment for such material will be made at the actual cost to the Contractor. In such case, the material shall become the property of the District. If the materials can be returned to the vendor and if the Engineer so directs, the material shall be returned and the Contractor will be paid for the actual cost for returning the material.

2. The actual costs to be paid by the District to the Contractor in accordance with this Article will be computed in accordance with Article 5.04.02.

C. **Supplemental Contract Items**: Items noted as “Supplemental” in the Proposal may be deleted entirely or in part at the sole discretion of the District. The provisions of Articles 5.03.01.A.1., 5.03.01.A.2, and 5.03.01.B shall not apply to “Supplemental Contract Items.”

5.04. Change in Contract Price

5.04.01. General

A. The Contract price constitutes the total compensation payable to the Contractor for performing the work. All duties, responsibilities, and obligations assigned to or undertaken by the Contractor to perform the work shall be at the Contractor’s expense without change in the Contract price.

B. The Contract price may only be changed by a change order. Any request for an increase in the Contract price shall be based on written notice delivered by the Contractor to the Engineer promptly, but in no event later than 10 days after the date of the occurrence of the event giving rise to the request and stating the general nature of the request. Notice of the amount of the request with supporting data shall be delivered within 45 days after the date of the occurrence, unless the Engineer allows an additional period of time to ascertain more accurate data in support of the request, and shall be accompanied by the Contractor's written statement that the amount requested covers all amounts (direct, indirect, and consequential) to which the Contractor is entitled as a result of the occurrence of the event. No request for an adjustment in the Contract price will be valid if not submitted in accordance with this Article.

C. The value of any work covered by a change order or of any request for an increase or decrease in the Contract price shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract documents, by application of unit prices to the quantities of the items involved; or

2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Article 5.04.04; or

3. On the basis of the cost of work (determined as provided in Articles 5.04.02. and 5.04.03.) plus a Contractor's fee for overhead and profit (determined as provided in Article 5.04.04.).

5.04.02. Cost of Work (Based on Time and Materials)

A. **General**: The term "cost of work" means the sum of all costs necessarily incurred and paid by the Contractor for labor, materials, and equipment in the proper performance of work. Except as otherwise may be agreed to in writing by the District, such costs shall be in amounts no higher than those prevailing in the locality of the project.

B. **Labor**: The cost of labor used in performing work by the Contractor, a subcontractor, or other forces, will be the sum of the following:

1. The actual wages paid plus any employer payments to or on behalf of workers for fringe benefits, including health and welfare, pension, vacation, and similar purposes. The cost of labor may include the wages paid to foremen when it is determined by the Engineer that the services of foremen do not constitute a part of the overhead allowance.

2. There will be added to the actual wages as defined above, a percentage set forth in the latest "Labor Surcharge and Equipment Rental Rates" in use by the California State Department of Transportation which is in effect on the date upon which the work is accomplished. This percentage shall constitute full compensation for all payments imposed by State and Federal laws including, but not limited to, workers' compensation insurance and Social Security payments.

3. The amount paid for subsistence and travel required by collective bargaining agreements.

4. For equipment operators, payment for the actual cost of labor and subsistence or travel allowance will be made at the rates paid by the Contractor to other workers operating similar equipment already on the work, or in the absence of such labor, established by collective bargaining agreements for the type of workers and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of subsection 2 of Article 5.04.02.B herein, which surcharge shall constitute full compensation for payments imposed by State and Federal laws, and all other payments made to on behalf of workers other than actual wages.

C. **Materials**: The cost of materials used in performing work will be the cost to the purchaser, whether Contractor or subcontractor, from the supplier thereof, except as the following are applicable:

1. Trade discounts available to the purchaser shall be credited to the District notwithstanding the fact that such discounts may not have been taken by the Contractor.

2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the Engineer. Markup, except for actual costs incurred in the handling of such materials, will not be allowed.

3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.

4. If, in the opinion of the Engineer, the cost of material is excessive, or the Contractor does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site, less trade discount. The District reserves the right to furnish materials for the extra work and no claim shall be made by the Contractor for costs and profit on such materials.

D. **Equipment**: The Contractor will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the Department of Transportation publication entitled, “Labor Surcharge and Equipment Rental Rates,” which is in effect on the date upon which the work is accomplished. Such rental rates will be used to compute payments for equipment whether the equipment is under the Contractor’s control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the District for the total period of use. If it is deemed necessary by the Contractor to use equipment not listed in the foregoing publication, an equitable rental rate for the equipment will be established by the Engineer. The Contractor may furnish cost data which might assist the Engineer in the establishment of the rental rate.

1. The rental rates paid, as above provided, shall include the cost of fuel, oil, lubrication supplies, small tools, necessary attachments, repairs and maintenance of all kinds, depreciation, storage, insurance, and all incidentals. Operators of equipment will be separately paid for as provided in subsection 4 of Article 5.04.02.B.

2. All equipment shall be in good working condition and suitable for the purpose for which the equipment is to be used.

3. Before construction equipment is used on the extra work, the Contractor shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the Engineer, in duplicate, a description of the equipment and its identifying number.

4. Unless otherwise specified, manufacturer's ratings and manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

5. Individual pieces of equipment or tools having a replacement value of $500 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.

E. **Owner-Operated Equipment**: When owner-operated equipment is used to perform work and is to be paid for as extra work, the Contractor will be paid for the equipment and operator as follows:

1. Payment for the equipment will be made in accordance with the provisions in Article 5.04.02.D. "Equipment."

2. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the Contractor to other workers operating similar equipment already on the project, or, in the absence of such other workers, at the rates for such labor established by collective bargaining agreement for type of worker and location of the work, whether or not the owner-operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein, in accordance with the provisions in subsection 2 of Article 5.04.02(B), "Labor."

3. To the direct cost of equipment rental and labor, computed as provided herein, will be added the markup for equipment rental and labor as provided in Article 5.04.04, "Contractor's Fee."

F. **Equipment Time**: The rental time to be paid for equipment on the work shall be the time the equipment is in productive operation on the work being performed and shall include the time required to move the equipment to the new location and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. No payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work:

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be ½-hour of operation, and any part of an hour in excess of 30 minutes will be considered 1-hour of operation.
2. When daily rates are listed, operation for any part of a day less than 4 hours shall be considered to be ½-day of operation.
3. Rental time will not be allowed while equipment is inoperative due to breakdowns or Contractor caused delays.

G. **Cost of Work Documentation**: The Contractor shall furnish the Engineer Daily Extra Work Reports on a daily basis covering the direct costs of labor and materials and charges for equipment whether furnished by the Contractor, subcontractor, or other forces. The District will provide the Extra Daily Work Report forms to the Contractor. The Contractor or an authorized agent shall sign each Daily Extra Work Report. The Daily Extra Work Report shall provide names and classifications of workers and hours worked; size, type, and identification number of equipment; and the hours operated. Copies of certified payrolls and statement of fringe benefit shall substantiate labor charges. Valid copies of vendor's invoices shall substantiate material charges.

1. The Engineer will make any necessary adjustments. When these reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.
2. The Contractor shall inform the Engineer when extra work will begin so that the District inspector can concur with the Daily Extra Work Reports. Failure to conform to these requirements may impact the Contractor's ability to receive proper compensation.

5.04.03. Special Services

A. Special services are defined as that work characterized by extraordinary complexity, sophistication, or innovations, or a combination of the foregoing attributes which are unique to the construction industry. The following may be considered by the Engineer in making estimates for payment for special services:

1. When the Engineer and the Contractor, by agreement, determine that a special service is required which cannot be performed by the forces of the Contractor or those of any of its subcontractors, the special service may be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the Engineer, invoices for special services based upon the current fair market

value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.

2. When the Contractor is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the jobsite, the charges for that portion of the work performed at the offsite facility may, by agreement, be accepted as a special service and accordingly, the invoices for the work may be accepted without detailed itemization.

3. All invoices for special services will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit on labor, materials, and equipment specified in Article 5.04.04. Herein, a single allowance of ten (10) percent will be added to invoices for special services.

5.04.04. Contractor’s Fee

A. Work ordered on the basis of time and materials will be paid for at the actual and necessary cost as determined by the Engineer, plus allowances for overhead and profit which allowances shall constitute the “Contractor’s Fee,” except as provided in subparagraph B of this Article. For extra work involving a combination of increases and decreases in the work, the actual necessary cost will be the arithmetic sum of the additive and deductive costs. The allowance for overhead and profit shall include compensation for superintendence, bond and insurance premiums, taxes, all field and home office expenses, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Articles 5.04.02.B, C, D, and E, herein. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Necessary Cost	Overhead and Profit Allowance
Labor	33 percent
Materials	15 percent
Equipment	15 percent

B. Labor, materials, and equipment may be furnished by the Contractor or by the subcontractor on behalf of the Contractor. When all or any part of the extra work is performed by a subcontractor, the allowance specified in subparagraph A of Article 5.04.04 shall only be applied to the labor, materials, and equipment costs of the subcontractors to which the Contractor may add 5 percent of the subcontractor’s total cost for the extra work. Regardless of the number of hierarchal tiers of subcontractors, the 5 percent increase above the subcontractor’s total cost, which includes the allowances for overhead and profit specified herein, may be applied one time only for each separate work transaction.

5.04.05. Compensation for Time Extensions

A. Adjustments in compensation for time extension will be allowed only for causes in Article 5.05.01.B.1 through Article 5.05.01.B.4 computed in accordance with

Article 5.04 and the following. No adjustments in compensation will be allowed when District-caused delays to a controlling item of work and Contractor-caused delays to a controlling item of work occur concurrently or for causes in Article 5.05.01.B.5 through Article 5.05.01.B.6.

B. Compensation for idle time of equipment will be determined in accordance with the provisions in Article 5.04.02.E and Section 8-1.09 of the State Specifications.

5.05. Change of Contract Time

5.05.01. General

A. The Contract time may only be changed by a change order. Any request for an extension of the Contract time shall be based on written notice delivered by the Contractor to the Engineer promptly, but in no event later than 10 days after the date of the occurrence of the event giving rise to the request and stating the general nature of the request. Notice of the extent of the request with supporting data shall be delivered within 45 days after the date of such occurrence, unless the Engineer allows an additional period of time to ascertain more accurate data in support of the request, and shall be accompanied by the Contractor's written statement that the adjustment requested is the entire adjustment to which the Contractor has reason to believe it is entitled as a result of the occurrence of said event. No request for an adjustment in the Contract time will be valid if not submitted in accordance with the requirements of this Article.

1. The Contract time will only be extended when a delay occurs which impacts a controlling item of work as shown on the work schedules required in the Special Provisions. Time extensions will be allowed only if the cause is beyond the control and without the fault or negligence of the Contractor. Time extensions will also be allowed when District-caused delays to a controlling item of work and Contractor-caused delays to a controlling item of work occur concurrently. The Contractor will be notified if the Engineer determines that a time extension is not justified.

B. The Contract time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a request is made therefor as provided in this Article. An extension of Contract time will only be granted for days on which the Contractor is prevented from proceeding with at least 75 percent of the normal labor and equipment force actually engaged on the said work, by said occurrences or conditions resulting immediately therefrom which impact a controlling item of work as determined by the Engineer. Such delays shall include:

1. Changes.

2. Failure of the District to furnish access, right of way, completed facilities of related projects, Drawings, materials, equipment, or services for which the District is responsible.

3. Survey error by the District.

4. Suspension of work pursuant to Articles 7.05(A) and 7.05(C).

5. Occurrences of a severe and unusual nature including, but not restricted to, acts of God, fires, and excusable inclement weather. An “act of God” means an earthquake, flood, cloudburst, cyclone, or other cataclysmic phenomena of nature beyond the power of the Contractor to foresee or to make preparation in defense against, but does not include ordinary inclement weather. Excusable inclement weather is any weather condition, the duration of which varies in excess of the average conditions expected, which is unusual for the particular time and place where the work is to be performed, or which could not have been reasonably anticipated by the Contractor, as determined from U.S. Weather Bureau records for the proceeding 3-year period or as provided for in the Special Provisions.

6. Act of the public enemy, act of another governmental entity, public utility, epidemic, quarantine restriction, freight embargo, strike, or labor dispute. A delay to a subcontractor or supplier due to the above circumstances will be taken into consideration for extensions to the time of completion.

5.05.02. Extensions of Time for Delay Due to Excusable Inclement Weather

A. The Contract time will be extended for as many days in excess of the average number of days of excusable inclement weather, as defined in Article 5.05.01.B.5., as the Contractor is specifically required under the Special Provisions to suspend construction operations, or as many days as the Contractor is prevented by excusable inclement weather, or conditions resulting immediately therefrom, from proceeding with at least 75 percent of the normal labor and equipment force engaged on critical items of work as shown on the schedule.

B. Should the Contractor prepare to begin work at the regular starting time at the beginning of any regular work shift on any day on which excusable inclement weather, or the conditions resulting from the weather prevents work from beginning at the usual starting time and the crew is dismissed as a result thereof, the Contractor will be entitled to a 1-day extension whether or not conditions change thereafter during said day and the major portion of the day could be considered to be suitable for such construction operations.

C. The Contractor shall base the construction schedule upon the inclusion of the number of days of excusable inclement weather specified in the Article titled “Excusable Inclement Weather Delays,” of the Special Provisions. No extension of the Contract time due to excusable inclement weather will be considered until after the said aggregate total number of days of excusable inclement weather has been reached; however, no reduction in Contract time would be made if said number of days of excusable inclement weather is not reached.

5.06. Changed Site Conditions

A. If any work involves digging trenches or other excavations below the surface, the Contractor shall promptly and before the following conditions are disturbed, notify the District in writing of any:

1. Material that the Contractor believes may be a regulated material that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the site differing from those indicated in this Contract.

3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

B. The District will promptly investigate the condition and if it finds that the conditions do materially so differ, or do involve regulated material, and cause a decrease or increase in the Contractor’s cost of, or the time required for, performance of any part of the work, the District will issue a change order under the procedures described in this Contract. For regulated materials, the District reserves the right to use other forces for exploratory work to identify and determine the extent of such material and for removing regulated material from such areas.

C. In the event that a dispute arises between the District and the Contractor on whether the conditions materially differ or on the Contractor’s cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by this Contract but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by this Contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

5.07. Cost Reduction Incentive

A. The Contractor may submit to the Engineer, in writing, proposals for modifying the Drawings, Specifications, or other requirements of the Contract for the sole purpose of reducing the total cost of construction as provided for in Section 5-1.14 of the State Specifications, wherein the words “State” and “Department” shall mean District.

5.08. Disputes

A. It is the intention of this Article that disputes between parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time in order that the matters may be resolved, if possible, or other appropriate action promptly taken. Disputes are divided into four categories: notice, protest, potential claim, and claim. During the course of the project and up to receiving the proposed final estimate, the Contractor must submit a contract dispute in the form of a written notice, protest, or a potential claim to the Engineer.

B. Dispute Resolution Review Board process, if required, shall be in accordance with Article 5.10 of these Specifications.

5.08.01. Protest

A. If the Contractor considers any work demanded to be outside of the requirements of the Contract, or considers any records or ruling or act or omission of the Engineers to be unfair, the Contractor shall immediately, upon such work being demanded, or such record or ruling being made, ask in writing for written instructions or decisions, whereupon the Contractor shall proceed without delay to perform the work or to conform to the record or ruling and, within 15 days after date of receipt of the written instructions or decisions, shall file a written protest with the Engineer stating clearly in detail the basis of the protest. Except for such protests as are made of record in the manner herein specified and within the time limit stated, the records, rulings, instructions, decisions, and acts or omissions of the Engineer shall be final and conclusive. Instructions and decisions of the Engineer contained in letters transmitting Drawings to the Contractor shall be considered as written instructions and decisions subject to protest as herein provided.

5.08.02. Notice of Potential Claims

A. Contractor is not entitled to additional compensation for any cause unless Contractor submits to the District a written Notice of Potential Claim as hereinafter specified.

B. The written Notice of Potential Claim must set forth the reasons for which Contractor believes additional compensation and/or time will or may be due, the nature of the costs and/or time involved, and, insofar as possible, the amount of the potential claim. The said notice as above required must have been submitted to District before Contractor performs the work giving rise to the potential claim for additional compensation and/or time, if based on an act or failure to act by District, or in all other cases within fourteen (14) days after the happening of the event, thing or occurrence giving rise to the potential claim.

C. Notice of Potential Claim shall be certified in accordance with Article 5.09.

D. Compliance with the foregoing shall not be a prerequisite to any claim that is based on differences in measurement or errors of computations as to Contract quantities.

5.09. Claims

A. Claims by the Contractor must be submitted to the Engineer on or before the date of final payment. Claims shall be in writing, shall specify the basis for each claim, shall refer to the applicable provision or provisions of the Contract, and shall show the method of computation and the actual amount claimed. The claim shall include documents necessary to substantiate the claim and to establish liability, causation, and damages. All other factual data, including documentation of actual costs pertaining to that claim, shall be submitted. Each issue contained in a claim must include documentation including background, chronology, Contractor's position, supporting documentation of merit, supporting documentation of damages, schedules (if appropriate) and productivity exhibits (if appropriate).

B. Claims must be certified using the following language:

I, __________________________, BEING THE __________________________ (MUST BE AN OFFICER) OF____ (CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT: I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM FOR ADDITIONAL COMPENSATION AND/OR EXTENSION OF TIME, AND KNOW ITS CONTENTS, AND SAID CLAIM IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE DISTRICT IS LIABLE; AND, FURTHER, THAT I AM FAMILIAR WITH CALIFORNIA PENAL CODE SECTION 72 AND CALIFORNIA GOVERNMENT CODE SECTION 12650, ET SEQ, PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT AND/OR OTHER SEVERE LEGAL CONSEQUENCES.

C. The District, or their authorized representatives, shall have access, upon reasonable notice, during normal business hours, to Contractor and subcontractors' books, documents and accounting records, including but not limited to, bid worksheets, bids, subcontractor bids and proposals, estimates, cost accounting data, accounting records, payroll records, time sheets, canceled checks, profit and loss statements, balance sheets, project correspondence including but not limited to all correspondence between Contractor and its sureties and subcontractors/vendors, project files, scheduling information, and other records of the Contractor and all subcontractors directly or indirectly pertinent to the work of the Project; original as well as changed and claimed extra work, to verify and evaluate the accuracy of cost and pricing data submitted with any Claim for which additional compensation has been requested or notice of potential Claims has been tendered. Such access shall include the right to examine and audit such records, and make excerpts, transcriptions, and photocopies at District's cost.

D. The parties agree that in the event Contractor or any subcontractor fails to comply with this Article, the claim will not be considered by the District. Contractor agrees to impose upon its subcontractors by appropriate subcontract provision, the obligations of this Article of the Standard Provisions.

E. No claim shall be considered where there has been a failure to comply with the requirements relative to Protest and Notice of Potential Claims as written elsewhere in these Specifications. The presentation of a claim shall be an express condition precedent to the Contractor's recourse to: (A) informal conference; (B) nonbinding mediation, and (C) judicial arbitration to resolve disputes on construction claims of $375,000 or less, or court action upon the Contract for claim in excess of $375,000 in compliance with Section 20104 of the Public Contract Codes.

5.09.01. Claims Less Than Fifty Thousand Dollars

A. For claims of less than fifty thousand dollars ($50,000), the Engineer shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the District may have against the Contractor.

B. If additional information is thereafter required, it shall be requested and provided pursuant to this Article upon mutual agreement of the Engineer and the Contractor.

C. The Engineer’s written response to the claim, as further documented, shall be submitted to the Contractor within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

5.09.02. Claims From Fifty Thousand Dollars to Three Hundred and Seventy-Five Thousand Dollars

A. For claims greater than or equal to fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the Engineer shall respond in writing to all written claims within 60 days of receipt of the claim, or may request in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims the District may have against the Contractor.

B. If additional information is thereafter required, it shall be requested and provided pursuant to this Article, upon mutual agreement of the Engineer and the Contractor.

C. The Engineer’s written response to the claims, as further documented, shall be submitted to the Contractor within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

5.09.03. Informal Conferences

A. If the Contractor disputes the Engineer’s written response, or the Engineer fails to respond within the time prescribed, the Contractor may so notify the Engineer, in writing, either within 15 days of receipt of the Engineer’s response or within 15 days of the Engineer’s failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon such demand, the Engineer shall schedule a meet and confer conference within 30 days.

B. If, following the meet and confer conference, the claim or any portion remains in dispute, the Contractor may file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the Contractor submits his or her written claim pursuant to Article 5.09 until the time the claim is denied, including any period of time utilized by the meet and confer conference.

5.09.04. Civil Actions

A. The following procedures are established for all civil actions filed to resolve claims:

1. Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.

2. If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 commencing with Section 2016, of Chapter 3 of Title 3 of Part 4 of Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

B. In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, (A) arbitrators shall, when possible, be experienced in construction law, and (B) any party appealing an arbitration award who does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney’s fees on appeal of the other party.

5.10. Dispute Review Board

A. When specified in the Special Provisions that a Dispute Review Board (DRB) process is required, the DRB process shall be in accordance with these Specifications.

5.10.01. General

A. A DRB is to assist in and facilitate the avoidance and timely, impartial resolution of disputes.

B. All disputes referred to the DRB shall be subject to the dispute resolution process herein described as a condition precedent to initiating a subsequent dispute resolution process such as arbitration or litigation for that dispute.

C. Except as explicitly otherwise provided, all disputes that are actionable under the provisions of the prime contract between the District and the Contractor may be referred to the DRB.

D. The DRB shall be utilized when dispute or potential claim resolution at the project level is unsuccessful. The DRB shall function until the day of acceptance of the Work by the District Board of Directors, at which time the work of the DRB will cease except for completion of unfinished dispute hearings and reports.

E. The Contractor shall include in all subcontracts that subcontractors and suppliers of any tier (a) agree to submit subcontractor claims to the Contractor in a proper form and in sufficient time to allow processing by the Contractor in conformance with the DRB resolution specifications; (b) agree to be bound by the terms of the DRB provisions to the extent applicable to subcontractor claims; (c) agree that, to the extent a subcontractor claim is involved, completion of all steps required under these DRB special provisions shall be a condition precedent to pursuit by the subcontractor of other remedies permitted by law, including without limitation of a lawsuit against the Contractor; and (d) agree that the existence of a dispute resolution process for disputes involving subcontractor claims shall not be deemed to create any claim, right, or cause of action by any subcontractor or supplier against the District.

F. The DRB reports shall not be binding on the District or the Contractor, and shall be admissible in subsequent dispute resolution proceedings.

5.10.02. DRB Qualifications

A. Board members shall be experienced in the interpretation of contract documents and the resolution of construction disputes and in the type of construction to be performed.

B. The following definitions apply for the purpose of setting forth experience and disclosure requirements.

1. Party directly involved: The District or the Contractor of this Project.

2. Contractor includes all joint-venture partners individually.

3. Party indirectly involved: The construction manager, designers, architects, engineers, or other professional service firms or consultants, joint venture partners, subcontractors of any tier, and suppliers on this Project.

4. Financial ties: any ownership interest, loans, receivables, or payables.

C. Eligibility:

1. Direct Employment:
   - a. Current employees of any of the parties directly or indirectly involved are prohibited from serving as Board members.
   - b. Prospective Board members who were past employees of one of the parties directly involved must obtain permission from the other party prior to appointment.
   - c. Previous direct employment by one of the parties indirectly involved must be disclosed.
2. Consulting Assignments:
   - a. Individuals who are employed in a consulting capacity by any of the parties directly involved are prohibited from serving as Board members.
   - b. Prospective Board members who are currently employed as a consultant by one of the parties indirectly involved must obtain permission from the other party prior to appointment.
   - c. Previous employment as a consultant by any party directly or indirectly involved must be disclosed.
3. Financial Ties:
   - a. Individuals with financial ties to any of the parties directly involved are prohibited from serving as Board members.
   - b. Current financial ties to any of the parties indirectly involved must be disclosed.
   - c. Previous financial ties with any party, directly or indirectly involved must be disclosed.
4. Close Personal or Professional Relationships:
   - a. Individuals with close personal or professional relationships with a key member of any party directly involved are prohibited from serving as Board members.
   - b. Such current relationships with a member of any party indirectly involved in the contract must be disclosed.
   - c. All past personal or professional relationships with a key member of one of the parties directly or indirectly involved must be disclosed.

5. All past and current service as a Board member on projects where any of the parties directly or indirectly involved in this contract were also involved must be disclosed.

6. No member shall have had substantial prior involvement in the Project, in the judgment of the District and the Contractor.

D. Ongoing Responsibilities: While serving as a Board member on the DRB, no member shall participate in any discussion contemplating the creation of an agreement or making an agreement with any party directly or indirectly involved in the contract regarding employment or fee-based consulting services, or any other business arrangement after the contract is completed.

5.10.03. Establishment of the DRB

A. The District and the Contractor shall jointly participate in the evaluation and selection of prospective nominees for the DRB.

B. The District and the Contractor shall provide to the DRB nominees a list of the construction manager, designers, architects, engineers, professional service firms, consultants, joint-venture partners, subcontractors, and suppliers involved, or likely to be involved in the Project, with a listing of key personnel of each. DRB nominees shall provide the following, pursuant to the above requirements and in addition to the nominee’s full name and contact information, to both parties:

1. Resume showing construction experience qualifying the person as a DRB member.

2. Resume showing past DRB participation, if any. List each DRB assignment separately, indicating the name and location of the Project, dates of DRB service, name of owner, name of contractor, contract value, nominating party, if applicable, names of the other Board members and the number of disputes heard.

3. Disclosure statement describing past, present, and anticipated relationships, including indirect relationships through the nominee’s full-time employer, if any, to the Project, and with all parties directly and indirectly involved in the contract. Disclose close professional or personal relationships with key members of all these parties.

4. Disclosure is a continuing obligation of all Board members throughout the life of the contract.

C. The District and the Contractor shall then have three weeks to solicit and receive information from prospective candidates, and another two weeks to review and to jointly agree on the final selection of the three members to serve on the DRB. In the event that all three members were not selected from the initial pool of nominees, the process shall be repeated.

D. If the DRB Chair has not already been appointed as part of the selection process, then as soon as is practicable the Board members shall nominate the Chair and submit the nominee's resume and request approval by the District and the Contractor.

5.10.04. DRB Meetings

A. The DRB will visit the project site and meet with representatives of the parties at periodic intervals and at other times requested by the parties.

B. Each meeting shall consist of an informal discussion and a field observation of the work in progress. The discussion and field observation shall be attended by personnel of the District and the Contractor.

5.10.05. Dispute Resolution

A. Prior Good-Faith Negotiation:

1. The District and the Contractor shall enter into good-faith negotiations to settle a dispute before referring such dispute to the DRB.

2. These good-faith negotiations shall be founded on the principle of full and timely disclosure of each party's position to the other party, including the exchange of pertinent supporting records, analyses, expert reports, and similar documentation, and shall proceed without delay following the inception of the dispute. Such good-faith negotiations may involve the solicitation and rendering of a DRB advisory opinion as described herein.

B. Dispute Referral:

1. A dispute may be referred to the DRB by either the District or the Contractor. The dispute referral shall be made in writing to the DRB Chair with a copy concurrently provided to the other Board members and the other party.

2. If the contract stipulates a precedent dispute resolution process prior to referral to the DRB, and if one party fails to meet or adhere to the time requirements set forth under the contract for this process, the other party may then refer the dispute to the DRB. In the event that the contract does not specify such precedent process, or specifies a precedent process without time requirements, either party may refer the dispute to the DRB after passage of a reasonable period of time without progress toward a negotiated settlement and the DRB will determine if the dispute should be heard.

3. The dispute referral shall concisely define the nature and specifics of the dispute that are to be considered by the DRB and the scope of the recommendation requested.

4. The DRB Chair shall confer with the parties to establish a due date for delivering pre-hearing submittals, and a date, time, and location for

convening the DRB hearing. Hearings shall be convened at the next periodic meeting, unless the parties agree to a shorter or longer period.

C. Pre-Hearing Submittal:

1. The District and the Contractor shall each prepare a pre-hearing submittal and transmit it to all three members of the DRB and the other party. The pre-hearing submittal, comprising of a position paper with such backup data as is referenced in the position paper, shall be tabbed, indexed, and the pages consecutively numbered.

2. Both position papers shall, at a minimum, contain the following:

   a. A joint statement of the dispute, and the scope of the desired report, placed in a prominent location. The language of this joint statement shall summarize in a few sentences the nature of the dispute. If the parties are unable to agree on the wording of the joint statement of dispute, each party's position paper shall contain both statements, and identify the party authoring each statement.

   b. The basis and justification for the party's position, with reference to contract language and other supporting documents for each element of the dispute. In order to minimize duplication and repetitiveness, the parties may identify a common set of documents that will be referred to by both parties and submit them in a separate package.

   c. When the scope of the hearing includes quantum, the referring party shall include a schedule impact analysis and full cost details, calculated in accordance with methods set forth in the contract. This requirement does not apply if the report is to be made for entitlement alone or for entitlement with guidelines for quantum.

3. The number of copies, distribution requirements, and time for submittal will be established by the DRB and communicated to the parties by the Chair.

D. DRB Hearings:

1. The District will arrange for or provide hearing facilities at or near the site.

2. Attendance:

   a. The District and Contractor shall both limit attendance at the hearing to personnel directly involved in the dispute and participants in the good-faith negotiations that were conducted prior to submittal to the DRB except as noted below.

   b. Prior to the date established for the hearing, each party shall provide a list of proposed attendees to the DRB and to the other party. In the event of any disagreement, the DRB shall make the final determination as to who attends the hearing.

c. Attorneys shall not participate in the hearing. Attorneys representing the parties are permitted to attend dispute hearings, provided that prior permission is obtained from the other party.

d. At DRB hearings regarding claims by a subcontractor, including pass-through claims by a lower tier subcontractor or supplier, against the Contractor which are actionable by the Contractor against the District, the Contractor shall require and ensure that each subcontractor involved in the dispute have presented an authorized representative with actual knowledge of the facts underlying the subcontractor claims.

3. The conduct of the hearing shall be established by the DRB according to their operating procedures and generally consistent with the following guidelines:

a. The party who referred the dispute to the DRB shall present its position first, followed by the other party.

b. Both parties shall be allowed successive rebuttals, assuring a full and adequate opportunity to present their position, and to rebut the opposing party's position, until, in the DRB's opinion, all aspects of the dispute have been fully and fairly covered.

c. The DRB shall be fully prepared to, and may at any time, ask questions, request clarifications, or ask for additional data and/or job records.

d. Either party may request that the DRB direct a question to, or request a clarification from the other party. The DRB shall determine at what point in the proceedings such requests may be made and if they will be granted. In general, the DRB will not allow one party to be questioned directly by the other party.

e. In difficult or complex cases, additional hearings may be necessary to facilitate full consideration and understanding of the dispute.

f. The DRB, in its discretion, may allow introduction of arguments, exhibits, handouts, or documentary evidence that were not included in that party's pre-hearing position paper and have not been previously submitted to the other party. In such cases the other party will be granted time to review and prepare a rebuttal to the new material.

E. Failure to Prepare a Pre-Hearing Submittal or Attend a DRB Hearing:

1. In the event that either party fails to deliver a pre-hearing submittal by the date established by the DRB, the DRB shall, at its discretion, determine whether the hearing shall proceed as originally scheduled, or whether additional time shall be provided and a new date established. On the final date and time established for the hearing, the DRB shall proceed with the hearing utilizing the information that has been submitted.

2. In the event that some or all of the representatives of either party fails to appear at the appointed time of a DRB hearing, the DRB shall proceed with the hearing. The hearing shall take place as if all party representatives were in attendance, and the DRB shall consider all evidence brought before it and hear testimony from those party representatives that are present.

F. Use of Outside Experts:

1. By the District or Contractor:

    a. A party intending to offer an outside expert’s analysis at the hearing shall disclose such intention in writing to the other party and to the DRB no less than 30 days prior to the due date for delivering the pre-hearing submittal. The expert’s name and a general statement of the area of the dispute that will be covered by his or her testimony shall be included in the disclosure.

    b. Upon receipt of the above disclosure, the other party shall have the opportunity to secure the services of an outside expert to address or respond to those issues that may be raised by the other party’s outside expert. The disclosure requirements shall be the same as that specified above, except the time requirement is 10 days.

    c. The cost for securing outside expert services shall be borne by the party securing such services.

2. By the DRB:

    a. Prior to arranging for outside experts, the DRB shall obtain prior approval from the District and the Contractor by providing:

        (1) A statement explaining why the expert assistance is needed.

        (2) An estimate of the cost of the expert assistance.

        (3) A disclosure statement, in accordance with the requirements of 5.10.03.B.2 herein, using the criteria established in 5.10.02.C herein.

        (4) A confidentiality statement, consistent with the DRB’s such agreement, executed by the proposed expert.

b. The Contractor and the District shall equally bear the cost of the services of the outside expert employed by the DRB.

G. DRB Report:

1. The DRB's recommendations for resolution of a dispute will be formalized in a written report with format as determined by the DRB and signed by all Board members. The report should consist of a concise description of the dispute, short statements of each party's position, findings as to the facts of the dispute, discussion and rationale for the recommendation(s), and the recommendation(s). The report shall be submitted concurrently to the parties, as soon as possible after completion of the hearing as agreed by all parties.

2. If the DRB cannot arrive at a unanimous report, the Board shall prepare minority findings and recommendation(s), which, together with the majority findings and recommendation(s) shall comprise the DRB report. The report shall identify the issues of disagreement, along with the reasons for disagreement.

3. Clarification:

   a. Either party may request clarification of a report within 10 days following receipt of the report. Within a reasonable period of time, the DRB shall provide written clarification to both parties.

   b. Requests for clarification shall be submitted in writing simultaneously to the DRB and to the other party.

   c. Only one request for clarification per dispute from each party will be allowed.

4. Reconsideration:

   a. Either party may request reconsideration of a report, within 10 days following receipt of the report, when new information is obtained or developed that was not known at the time of the hearing, or when, in the party's opinion, the DRB misunderstood or failed to consider pertinent facts of the dispute. Within a reasonable period of time, the DRB shall provide written reconsideration to both parties.

   b. Requests for reconsideration shall be submitted in writing simultaneously to the DRB and to the other party.

   c. The Board will not entertain requests for reconsideration that amount to a renewal of prior argument or additional argument based on facts available at the time of the hearing.

   d. Only one request for reconsideration per dispute from each party will be allowed.

5. Acceptance:

   a. The District and the Contractor shall submit their written acceptance or rejection of the report concurrently to the other party and to the DRB within 14 days of receipt of the report or following receipt of responses to requests for clarification or reconsideration.

   b. Failure by either party to accept or reject within the specified period shall be construed as acceptance of the report by that party.

   c. Acceptance by the District of a report on entitlement only, or on entitlement with guidelines for quantum, does not obligate the District to any particular quantum amount.

H. Advisory Opinions:

1. An advisory opinion serves as a method for potentially avoiding a DRB hearing. It is not intended to replace the dispute resolution process specified herein, but may be implemented as part of the good faith negotiations conducted between the parties.

2. When mutually agreed by the District and the Contractor, the DRB may, at its discretion, provide an advisory opinion on any issue.

5.11. Escrow Bid Documents

A. When required by the Special Provisions, Escrow Bid Documents shall be prepared and submitted as specified herein.

5.11.01. Introduction

A. The Escrow Bid Documents shall include complete documentation of all backup information used in the preparation of the Contractor’s bid prices for this Project, as described below. The Escrow Bid Documents of the successful bidder will be held in escrow for the duration of the Contract or until all claims are resolved, whichever is later.

B. The Escrow Bid Documents are, and shall always remain, the property of the Contractor, subject to joint review by the District and Contractor, as provided herein.

C. The District stipulates and expressly acknowledges that the Escrow Bid Documents, as defined herein, constitute trade secrets.

1. This acknowledgement is based on the District’s express understanding that the information contained in the Escrow Bid Documents is not known outside the bidder’s business, is known only to a limited extent and by a limited number of employees of the bidder, is safeguarded while in the bidder’s possession, and is extremely valuable to the bidder’s competitors

by virtue of its reflecting bidder's construction strategies, assumptions and intended means, methods, and techniques of construction.

2. The District acknowledges that the bidder expended substantial sums of money in developing the information included in the Escrow Bid Documents and further acknowledges that it would be difficult for a competitor to replicate the information contained therein.

3. The District further acknowledges that the Escrow Bid Documents and the information contained therein are being provided to District only because it is an express prerequisite to award of the Contract.

4. The District further acknowledges that the Escrow Bid Documents include a compilation of information used in the bidder's business, intended to give the bidder an opportunity to obtain an advantage over competitors who do not know or use the contents of such information.

5. The District further agrees to safeguard the Escrow Bid Documents against disclosure to the fullest extent permitted by law.

D. The successful bidder agrees, as a condition of award of the Contract, that the Escrow Bid Documents constitute all of the information used in the preparation of its bid for this work, and that no other bid preparation information shall be considered in resolving disputes or claims. The successful bidder also agrees that nothing in the Escrow Bid Documents shall change or modify the terms or conditions of the Contract Documents.

5.11.02. Purpose

A. The Escrow Bid Documents will be used solely to assist in the settlement of disputes and claims. They will not be used for pre-award evaluation of the Contractor's anticipated methods of construction nor to assess the Contractor's qualifications for performing the work.

5.11.03. Format and Contents

A. The bidders may submit the Escrow Bid Documents in their usual cost estimating format: a standard format is not required. However, sufficient detail shall be included to ensure that the Escrow Documents enable complete understanding and proper interpretation of their content.

B. The Escrow Bid Documents shall clearly itemize and separate the estimated cost of performing each bid item contained in the bid. Bid items should be separated into sub-items consistent with the Schedule of Values format to present a detailed cost estimate. Crews, equipment, estimated quantities, and the rate of production shall be detailed. Increments of cost shall include, but not be limited to, such items as direct labor, permanent materials, supplies, consumables, subcontracts, equipment charges, and allocations of overheads and profit. Plant, equipment, and indirect costs should be detailed. All costs included in the bid prices must be specifically identified and the methods of application described.

C. The Escrow Bid Documents shall include all quantity take-offs, calculations of rates of production and progress, copies of quotes from subcontractors and suppliers, and memoranda, narratives and all other information used by the bidder to arrive at the prices contained in its bid.

5.11.04. Submittal

A. The Escrow Bid Documents shall be submitted by the three apparent low bidders in a sealed container separate from their proposal no later than 5 p.m. on the second business day following the bid opening day. Each container shall be clearly marked on the outside with the bidder’s name, date of submittal, project name, and the words “Escrow Documents.” Timely submission of these forms is considered material by the District.

B. The Escrow Bid Documents shall be accompanied by a separate certification, **Bid Form 10—Escrow Bid Documents Certification of Completeness**, signed by an individual authorized by the bidder to execute the bidding proposal, stating that the material in the Escrow Documents constitutes all of the documentary information used in preparation of this bid, and that he/she has personally examined the contents of the Escrow Documents container and has found that the documents in the container are complete.

C. The Escrow Bid Documents of the apparent successful bidder will be opened and examined by an appointed member of the District in the presence of the bidder before the Contract is awarded. The apparent successful bidder and applicable subcontractors as stated in paragraph G below shall attend this examination.

D. This examination is to ensure that the Escrow Bid Documents are legible and complete. It will not include a review of, or constitute approval of, proposed construction methods, estimating assumptions or interpretations of Contract Documents. The examination will not alter any condition or term of the Contract. Should the examination indicate that any data is incomplete or missing, the bidder shall supply the missing information within 24 hours or such other time as is mutually agreeable.

E. The timely submittal of complete Escrow Bid Documents is an essential element of the bidding process and a prerequisite to contract award. Failure to provide the necessary Escrow Bid Documents will be sufficient cause for the District to reject the bid as non-responsive.

F. If the Contract is not awarded to the apparent successful bidder, the Escrow Bid Documents of the bidder next to be considered for award shall be processed as described above. The Escrow Bid Documents of the unsuccessful bidders will be held in escrow until such time that they are returned unopened upon execution of the Contract by the successful bidder.

G. If any bidder’s proposal is based upon subcontracting any part of this work, each subcontractor, whose total subcontract price exceeds the percentage of the total bid price specified in the Special Provisions, shall provide separate Escrow Bid Documents to be included with those of the bidder. Such documents shall be opened and reviewed in the presence of the subcontractor only in the same manner and at the same time as the review described above for the apparent successful bidder.

H. It is the District's policy, in accordance with State law, that new subcontractors are not accepted after award. However, if the Contractor wishes to lawfully change a subcontractor or lawfully issue an additional subcontract for any portion of this work after award and the District grants a specific exception to this policy, the District retains the right to require the new subcontractor to submit Escrow Bid Documents before the new subcontract is approved.

5.11.05. Storage

A. Upon completion of the examination, receipt of the apparent successful bidder's Escrow Bid Documents will be acknowledged in writing by the District and the documents will be placed in escrow, for the life of the Contract, at an escrow firm within the greater Santa Clara County area chosen by the District. The District will pay for storage and maintenance of the Escrow Bid Documents.

5.11.06. Examination

A. The Escrow Bid Documents may be examined at any time deemed necessary by either the District or the Contractor in order to assist in the settlement of disputes and claims.

B. An examination of the Escrow Bid Documents is subject to the following conditions:

1. As trade secrets, the Escrow Bid Documents are proprietary and confidential.
2. The District and Contractor (and any subcontractor, to the extent Escrow Bid Documents are required by a subcontractor) shall each designate in writing to the other party and seven (7) days prior to any examination, representatives who are authorized to examine the Escrow Bid Documents. With the consent of both the District and the Contractor, members of the Disputes Review Board may participate in the examination of the Escrow Bid Documents. No other person shall have access to the Escrow Bid Documents.
3. Access to the Escrow Bid Documents may take place only in the presence of a duly designated representative of both the District and Contractor. If the Contractor fails to designate a representative or appear for joint examination on seven (7) days notice, then the District representative may examine the Escrow Bid Documents upon an additional three (3) days notice.

5.11.07. Final Deposition

A. The Escrow Bid Documents will be returned to the Contractor after the work has been completed and accepted and all claims and disputes involving this work have been settled. The Contractor will thereupon be required to waive, in writing, any right to lodge further claims involving this work.

5.12. Partnering

5.12.01. Partnering Relationship

A. The District encourages a partnering relationship with the Contractor in order to effectively complete the Contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

5.12.02. Professionally-Facilitated Project Partnering

A. To further the partnering relationship, Professionally-Facilitated Project Partnering can be implemented by one of two methods:

1. The District requires Professionally-Facilitated Project Partnering. The Contractor’s attention is directed to the Special Provisions regarding this requirement.

2. The Contractor submits a written request for Professionally-Facilitated Project Partnering. However, this method can only be implemented if the Engineer approves the request in writing.

B. Implementation of Professionally-Facilitated Project Partnering:

1. The scheduling of Professionally-Facilitated Project Partnering workshops, selecting the professional Partnering facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

2. Partnering workshops will be held on a quarterly basis during construction, or when needed, as determined by the Engineer and Contractor. Both parties will determine attendees at the workshop, agenda of the workshop, and duration. Persons required to be in attendance will be the Engineer and/or the Engineer’s authorized agents and key project personnel; the Contractor’s authorized representative, on-site project manager and key project supervision personnel of both the prime and principal subcontractors and suppliers; and other personnel as deemed necessary by the District and Contractor.

3. The Contractor shall secure the professional Partnering facilitator and the offsite meeting room. The District will pay in full for the services of a Professional Partnering Facilitator and offsite meeting room based on invoice prices without markup. Payment for these services shall be made utilizing the Professionally-Facilitated Project Partnering bid item or contract change order if no bid item is specified. All other costs associated with the partnering workshops will be borne separately by the party incurring the costs, such as wages and travel expenses, and no additional compensation will be allowed therefore.

C. The establishment of Professionally-Facilitated Project Partnering will not change or modify the terms and conditions of the Contract and will not relieve either party of the legal requirements of the Contract.

5.13. Dust Control

A. During the performance of all work under this Contract, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment, and means required to carry out proper and efficient measures wherever and whenever dust control is necessary to prevent operations from producing dust damage and nuisance to persons and property. Any claims resulting therefrom shall be borne solely by the Contractor.

5.14. Excavation Safety Plans

A. Attention is directed to Section 6705 of the Labor Code concerning trench excavation safety plans. Excavations five (5) feet or more in depth shall not begin until the Contractor has submitted and the Engineer has returned indicating “In Receipt Of” the Contractor’s detailed plan for worker protection from the hazards of caving ground during such excavations. The plan may be reviewed by the Engineer for completeness in accordance with federal, state, and local regulations. The Engineer will not be responsible for reviewing the accuracy of assumptions, data and information used, and procedures contained in the plan or the adequacy thereof. Such plans shall show the details of the design of shoring, bracing, sloping, or other provisions to be made for worker protection during such excavation. The plan shall not allow the use of shoring, sloping, or a protective system less effective than that required by the Construction Safety Orders; and if such plan varies from the shoring system standards established by the Construction Safety Orders, the plan (including calculations) shall be prepared, signed and stamped by an Engineer registered as a Civil or Structural Engineer, and by an Engineer registered as a Geotechnical Engineer, in the State of California.

B. Such plans shall be accompanied by a copy of the Permit to Excavate that has been issued by the Division of Occupational Safety and Health as required by Labor Code Section 6500 and following.

C. This Article shall be applicable regardless of Contract price.

5.15. Asbestos-Related Work

A. The Contractor’s attention is directed to Section 7058.5 of the Business and Professions Code which states that from and after January 1, 1987, no Contractor shall engage in asbestos-related work, as defined, who is not certified by the Contractor’s State License Board to do so.

B. The Contractor’s attention is also directed to Section 6501.5, and following, of the Labor Code relative to asbestos-related work and to provisions of the General Industry Safety Orders of Title 8 of the Code of Regulations and to the BAAQMD’s Regulation 11, Rule 2.

5.16. Substitutions

A. If a specific means, method, technique, sequence, or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique, or procedure of construction acceptable to the Engineer, if the Contractor submits sufficient information to allow the Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents.

B. The Engineer will respond in writing to the Contractor within 10 days indicating the time necessary to evaluate each proposed substitute. The Engineer will be the sole judge of acceptability, and no substitute will be ordered, installed, or utilized without the Engineer's prior written acceptance, which will be evidenced by either a change order or an approved shop drawing. The District may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute.

C. The Engineer will record time required by the Engineer and the Engineer's consultants in evaluating substitutions proposed by the Contractor and in making changes in the Contract Documents occasioned thereby. Regardless of whether or not the Engineer accepts a proposed substitute, the Contractor shall reimburse the District for the charges of the Engineer and Engineer's consultants for evaluating each proposed substitute.

D. Cost or time impacts to other items of Contract work which are caused by any Contractor initiated request for substitution, whether anticipated or unforeseen, shall be the responsibility of the Contractor.

E. Contractor's attention is directed to Article 10.06 – Equal, Sole or Single Source, and Substitutions.

SECTION 6. LEGAL RELATIONS AND RESPONSIBILITY

6.01. Laws to Be Observed

A. The Contractor shall remain informed of and in compliance with applicable existing and future federal, state, county, and municipal laws, ordinances, rules and regulations, including but not limited to, those cited herein.

6.02. Equal Opportunity Requirements

A. The Santa Clara Valley Water District is an equal opportunity employer and requires its contractors to have and adhere to a policy of equal opportunity and non-discrimination. In the performance of the Agreement, the Consultant will comply with all applicable federal, state, local laws and regulations, and will not discriminate against any subcontractor, employee, or applicant for employment, in the recruitment, hiring. employment, utilization, promotion, classification or reclassification, transfer, recruitment, recruitment advertising, evaluation, treatment, demotion, layoff, termination, rates of pay or other forms of compensation, and selection for professional development training (including apprenticeship), or against any other person, on the basis of sex (which includes pregnancy, childbirth, breastfeeding and medical conditions related to pregnancy, childbirth or breastfeeding), race, religion, color, national origin (including language use restrictions), ancestry, religious creed (including religious dress and grooming practices, political affiliation, disability (mental and physical, including HIV or AIDS), medical condition (cancer and genetic characteristics), genetic information, marital status, parental status, gender, age (40 and over), pregnancy, military and veteran status, sexual orientation, gender identity and gender expression, the exercise of family and medical care leave, the exercise of pregnancy disability leave, or the request, exercise, or need for reasonable accommodation. The Consultant's policy must conform with applicable state and federal guidelines including the Federal Equal Opportunity Clause, "Section 60-1.4 of Title 41, Part 60 of the Code of Federal Regulations," Title VII of the Civil Rights Act of 1964 as amended; the American's with Disabilities Act of 1990; the Rehabilitation Act of 1973 (Sections 503 and 504); California Fair Employment and Housing Act (Government Code Section 12900 et. Seq.); California Labor Code Sections 1101 and 1102.

6.03. Employment of Labor

A. In the employment of labor in the performance of the Contract, the District desires that the Contractor and all subcontractors shall, wherever possible, give first consideration to residents of the District.

6.04. Prevailing Wages

A. The Work to be performed pursuant to this contract is “public works” subject to California Labor Code Section 1771, et. seq. and the applicable implementing regulations. The General Prevailing Wage Rates issued by the California Department of Industrial Relations may be adjusted by the State during the term of this contract. Notwithstanding any other provisions of this Contract, Contractor will not be entitled to any adjustment in compensation in the event there are adjustments to the General Prevailing Wage Rates.

1. In accordance with provisions of Section 1773 of the Labor Code, the Director of the Department of Industrial Relations has ascertained the general prevailing rate of wages and employer payments for health and welfare, pension, vacation, and similar purposes available to the particular craft, classification, or type of workers employed on the work. These rates are set forth in the latest determination obtained from the Director, which is on file in the office of the Clerk of the Board of Directors and incorporated herein by reference the same as though set out in full. The rates are also available on the State of California Department of Industrial Relations website at http://www.dir.ca.gov.

    2. The Contractor shall forfeit as a penalty to the District, a maximum of $200 for each day, or portion thereof, for each worker paid less than the stipulated prevailing rates for any public work done under the Contract by the Contractor or by any subcontractor in violation of the provisions of the Labor Code, particularly Sections 1770 through 1780, inclusive.

B. Each Contractor and Subcontractor shall keep an accurate payroll record, showing the name, address, Social Security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee by him or her in connection with the public work. The payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor in accordance with the provisions of Section 1776 of the Labor Code.

1. Contractor and each Subcontractor must, pursuant to California labor Code §1776, submit a certified weekly payroll within ten (10) days after the Owner’s request for submission of certified weekly payroll records. The certified payroll must include the date of actual payment of wages for each worker employed on the project and a breakdown of each payment including all fringe benefits included in such wage for each worker.

2. Pursuant to California labor code §1776, in the event that the Contractor fails to comply with the 10-day submission deadline, the contractor must forfeit a maximum of $100 for each calendar day, or portion thereof, of each worker, until strict compliance is effectuated.

3. The Contractor shall inform the District of the location of the payroll records, including the street address, city, and county, and shall, within five (5) working days, provide a notice of a change in location and address. The responsibility for compliance with payroll record requirements imposed by said Section 1776 of the Labor Code is on the prime Contractor.

C. The Contractor must submit certified weekly payroll(s) in support of the monthly request for payment as required in Article 8.03. Certified weekly payroll(s) must be submitted within 10 calendar days from the progress payment end date. Payroll(s) shall contain the full name, address, and Social Security number of each employee, his or her correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made, and actual wages paid. They shall also indicate apprentices and ratio of apprentices to journeymen. The employee’s address and Social Security number need only appear on the first payroll on which his or her name appears. The payroll shall be accompanied by a “Statement of Compliance” signed by the employer or agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the Contract. The “Statement of Compliance” shall be on forms furnished by the District or on any form with identical wording. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

1. This project is subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations. The Contractor and subcontractors must furnish the records specified in Section 1776 directly to the Labor Commissioner, in the following manner: monthly, in a format prescribed by the Labor Commissioner.

2. The District will take all actions reasonably necessary to enforce the prevailing wage requirements of this contract including retaining progress payment funds not supported by certified payroll(s).

3. Retentions for failure to submit satisfactory payrolls are in addition to all other retentions provided for in the Contract.

D. The Contractor and each subcontractor shall preserve their respective payroll records for a period of 4 years from the date of filing a Notice of Completion and Acceptance under the Contract.

1. The work of installing, assembling, repairing or reconditioning, or other work of any nature on machinery, equipment, or tools used in or upon the work, is considered a part of the work to be performed under the Contract and any laborers, workers, or mechanics working on such machinery, equipment, or tools, are subject to all of the requirements relating to labor set forth in the Contract.

2. The construction, erection, and operation of material production, proportioning, or mixing plants from which material is used wholly on the Contract or on contracts under the supervision of the District, shall be considered a part of the work to be performed under the Contract and any laborers, workers, or mechanics working on such plants shall be subject to all of the requirements relating to labor set forth in the Contract.

6.05. Hours of Labor

A. Eight hours' labor constitutes a legal day's work. The Contractor shall forfeit as a penalty to the District, $25 for each worker employed in the execution of the Contract by the Contractor or by any subcontractor for each day during which such worker is required or permitted to labor more than 8 hours in violation of Labor Code Sections 1810 to 1815, inclusive, except as provided for under Labor Code Section 1815.

6.06. Apprentices

A. The Contractor's attention is directed to the provisions in Sections 1777.5, 1777.6, and 1777.7 of the Labor Code concerning the employment of apprentices by the Contractor or any subcontractor.

B. Section 1777.5 requires the Contractor or subcontractor employing persons, as defined, in any apprenticeable occupation to apply to the joint apprenticeship committee which is nearest the site of the public works project and which administers the apprenticeship program in that trade for a certificate of approval. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the Contract. The ratio of work performed by apprentices to journeymen in such cases shall not be less than 1 hour to 5 hours, except when the committee finds that any one of the following conditions is met:

1. In the event unemployment for the previous 3-month period in the project site area exceeds an average of 15 percent, or

2. In the event the number of apprentices in training in such area exceeds a ratio of 1 to 5, or

3. If there is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either (1) on a statewide basis, or (2) on a local basis, or

4. If assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his/her life or the life, safety, or property of fellow employees or the public at large, or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman.

C. The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if the Contractor employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.

D. The Contractor and any subcontractor shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices.

E. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

6.07. Permits and Licenses

A. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the prosecution of the work, except as provided in the Special Provisions.

6.08. Patents and Copyrights

A. The Contractor shall assume all costs including any costs of defense arising from the use of any copyrighted composition, secret process, patented or unpatented invention, article, equipment, device, or appliance manufactured, furnished, or used in the performance of the Contract, including their use by the District, unless otherwise specifically stipulated in the Specifications.

6.09. Public Safety

A. The Contractor shall be solely and completely responsible for conditions of the jobsite including safety of all persons and property during the performance of the work, except from District's sole negligence or intentional misconduct. Contractor's compliance with this requirement is not limited to normal working hours.

B. At all times the Contractor shall provide for public safety and convenience. The Contractor's operations shall be conducted so as to offer the least possible obstruction and inconvenience to the public along with the greatest safety to the public. At no time shall the Contractor have more work underway than can be prosecuted with proper regard to these considerations to the public.

C. The Contractor shall furnish, erect, and maintain such fences, barriers, lights, and signs and provide such flagging and guards as are necessary in the opinion of the Engineer or public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof.

6.10. Accident Prevention

A. The Contractor shall comply with the California Occupational Safety and Health Act (Labor Code Section 6300 et seq.) and Title 8 of the Code of Regulations, and will also take, or cause to be taken, such additional measures as may be necessary for the prevention of accidents.

B. Prior to commencement of work the Contractor shall (1) submit proposals in writing for effectuating provisions for accident prevention, and (2) meet in conference with the Engineer to discuss and develop mutual understandings relative to administration of an overall safety program.

C. During the performance of work under the Contract, the Contractor shall institute controls and procedures for the control and safety of persons visiting the jobsite.

D. The Contractor shall maintain an accurate record of, and shall report to the Engineer in writing, exposure data and all accidents resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment incident to work performed under the Contract.

E. The Engineer will notify the Contractor of any noncompliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply immediately, the matter will be referred to the proper authority. No part of the time lost due to any stop order issued by proper authority shall be made the subject or claim for extension of time or for extra costs or damages by the Contractor.

F. Compliance with the provisions of this Article by subcontractors will be the responsibility of the Contractor.

6.11. Explosives and Stream Pollution

A. When the use of explosives is necessary for the prosecution of the work, the Contractor shall not endanger life or property.

B. All explosives shall be stored in accordance with the provisions of Division XI of the Health and Safety Code and applicable county and city ordinances.

C. Attention is called to the necessity of obtaining a permit from the Department of Fish and Game of the State of California in advance of use of underwater explosives. Attention is directed to the Fish and Game Code relating to stream pollution, particularly Section 5650.

6.12. Fires

A. The Contractor shall obtain any necessary fire permits from the properly constituted authority and comply with all regulations of the BAAQMD.

6.13. Interference With Fire Hydrants, Highways, and Fences

A. The Contractor shall conduct operations as not to close or obstruct any portion of any highway, road, or street, or prevent in any way free access to fire hydrants until permits have been obtained therefor from the proper authorities. If any highway required to be kept open shall be rendered unsafe by the Contractor’s operations, the Contractor shall make such repairs or provide such temporary guards as shall be acceptable to the authorities having jurisdiction and to the Engineer. Any highway or street maintenance or repair work required by local authorities in connection with necessary operations under the Contract shall be performed by the Contractor at the Contractor's own cost and expense. Fences subject to interference shall be maintained as effective barriers consistent with the original intent but, upon approval of the Engineer, they may be moved or rearranged to facilitate prosecution of the work until the work is finished, after which they shall be restored to their original location in an equal or better condition that existed prior to rearrangement.

6.14. Preservation of Property

A. Due care shall be exercised to avoid damage to existing improvements, utility facilities, and adjacent property, real and personal. The fact that any existing underground improvement or facility is not shown on the Drawings shall not relieve the Contractor of responsibility to ascertain the existence of any underground improvement or facility which may be subject to damage by reason of the Contractor's operations.

B. Any damage to improvements or property, whether above or below the ground, private or public, within or adjacent to the project limits, arising from, or in consequence of, the performance of the Contract shall be repaired at once by the Contractor. If the Engineer requires such repair to be made prior to the execution or continued performance of any part of the work included in this Contract, the Engineer will so notify the Contractor who shall delay or discontinue the performance of that part of the work until the necessary repair has been made. Such delay shall not be considered unavoidable, and no extension of time for completion of the Contract will be allowed therefor.

C. When ordered by the Engineer to make any such repair, the Contractor shall start work thereon within four (4) hours and shall prosecute the same with diligence to completion. Upon failure of the Contractor to so comply with such order, or upon the Contractor's failure to make immediate emergency repairs reasonably determined by the Engineer to be necessary in the best interests of the public, the Engineer shall have authority to cause such repair to be made and to deduct the costs thereof from any money due, or which may become due, the Contractor.

D. In an emergency affecting the safety of life or property including adjoining property, the Contractor shall act to prevent, to the extent possible, such threatened loss or injury, whether or not instructed to do so by the Engineer.

6.15. Contractor's Responsibility for Work

A. Until the formal acceptance of the work, the Contractor shall have the charge and care of the work and of the materials to be used therein, and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The materials to be used in the work include both those furnished by the District and those furnished by the Contractor, including materials for which the Contractor has received partial payment as provided in Article 8.03.

6.16. Indemnification

A. The Contractor shall defend, indemnify and save harmless the District and its Directors, officers, employees, and agents from liability, loss, suits, actions, or claims brought for or on account of violation of laws, ordinances, rules or regulations, or injury, damage, or loss including death caused by acts or omissions of the Contractor, its employees, or agents.

B. The Contractor shall defend, indemnify and save harmless the agencies/parties named in Article 13.16.02.A. of the Special Provisions, including their officers, employees, and agents from liability, loss, suits, actions, or claims brought for or on account of any violation of laws, ordinances, rules or regulations, or injury, damage, or loss including death caused by acts or omissions of the Contractor, its employees, or agents.

6.17. Contractor's Insurance

6.17.01. General

A. No Contract between the parties is formed until all insurance required by this Article has been obtained and such insurance and insurers have been approved by the District. The insurance procured by Contractor for the benefit of Santa Clara Valley Water District shall not be deemed to release or limit any liability of Contractor. Damages recoverable by Santa Clara Valley Water District for any liability of Contractor shall, in any event, not be limited by the amount of the required insurance coverage. Any delay in the commencement of work beyond the date of the first chargeable day in the Notice to Begin Work, caused by the Contractor's failure to comply with the insurance requirements specified in these Specifications, is the responsibility of the Contractor. Failure by the Contractor to maintain all required insurance at all times during the performance of this Contract, and until acceptance by the District, shall, at the discretion of the District, result in temporary suspension of work, or termination of control, or termination of contract in accordance with Articles 7.05, 7.07, 7.08 respectively, and shall not be a basis for a time extension. Contractor's insurance shall be primary with respect to any other insurance which may be carried by Santa Clara Valley Water District.

B. The District has the right to require Contractor to provide complete, certified copies of all required pertinent insurance policies, including endorsements affecting the coverage required by the Agreement.

C. The specific insurance requirements and coverages shall be in accordance with the Special Provisions.

6.17.02. Insurance on Work and Materials

A. The Contractor shall secure and maintain such direct damage insurance against such perils as the Contractor may deem necessary to protect the work called for in this Contract, including work completed, material in place or to be used in the performance of this Contract, and such other miscellaneous items as may be necessary to the performance of this Contract.

6.18. Payment of Taxes

A. Except as otherwise specifically provided in the Special Provisions, the Contract prices shall include full compensation for all current and future taxes which the Contractor is required to pay, whether imposed by federal, state, or local government, and no tax exemption certificate or any other document designed to exempt the Contractor from payment of tax will be furnished to the Contractor by the District.

6.19. Cooperation With Others

A. The District reserves the right to do other work on or near the project. The Contractor shall cooperate with others and conduct work so as to facilitate work by the District or others and prevent delay, additional expense, or hindrance thereto. The Contractor shall request from, and exchange with others, Drawings, data, and information as necessary to insure proper completion of the project and work of others. The Contractor shall furnish copies of correspondence and Drawings exchanged with other contractors to the Engineer.

B. The Contractor shall conduct, adjust, correct, and coordinate work with work of others so that the project shall be free of defects.

6.20. Property Rights in Materials

A. Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, or after payment has been made for 90 percent of the value of materials delivered to the site of the work, whether or not they have been so attached or affixed. All such materials shall become the property of the District upon being so attached or affixed or upon payment of such 90 percent of the value of materials delivered by the Contractor on the ground and not used, as provided in Article 8.03.

6.21. Rights in Land and Improvements

A. Nothing in these Specifications shall be construed as allowing the Contractor to make any arrangements with any person to permit occupancy or use of any land, structure, or building within the limits of the Contract for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the District and any owner, former owner, or tenant of such land, structure, or building.

6.22. Title to Materials Found on the Work

A. The title to all water and to the right to the use of all water, to all soil, stone, gravel, sand, minerals, and all other materials developed or obtained in the excavation or other operations by the Contractor or any subcontractor, or any of their employees, and the right to use or dispose of the same, are hereby expressly reserved by the District, and neither the Contractor, nor any subcontractor, nor any of their employees shall have any right, title, or interest in, or to any part thereof; neither shall they, nor any of them, assert or make any claim thereto. The Contractor may be permitted to use in the work, without charge, any such materials which meet the requirements of these Specifications.

6.23. Trespass

A. The Contractor shall be responsible for all damage or injury which may be caused on any property by trespass by the Contractor, any subcontractor, or their employees in the course of their employment, whether the said trespass was committed with or without the consent or knowledge of the Contractor.

6.24. Subcontracting

A. The Contractor shall comply with Subletting and Subcontracting Fair Practices Act commencing with Section 4100 of the Public Contract Code. Violations shall subject Contractor to penalties described in the Act.

B. In accordance with Section 4107 of the Public Contract Code, the Designated Engineer is an authorized officer to act for the Board for the purposes of consenting to a substitute subcontractor.

6.25. Tunnel Construction Safety

A. Attention is directed to Labor Code Sections 7950 and following, concerning tunnel safety. The Contractor shall notify the Division of Occupational Safety and Health and the Engineer before any initial construction may be started at any tunnels. A prejob safety conference, to be arranged for by the Contractor, shall be held for all underground operations. The Engineer shall be notified of the time and place of such conference. The tunnel classification prepared by the Division of Occupational Safety and Health shall be prominently posted at the site by the Contractor. The District will obtain this classification prior to the request for bids, whenever possible, and make it available to the Contractor.

6.26. Assignment of Antitrust Claims

A. Sections 4550 through 4554 of the Government Code pertaining to the assignment of antitrust claims are incorporated herein in full by this reference.

6.27. Burial Sites

A. Pursuant to Ordinance Code Section B6-18 of the County of Santa Clara and requirements of Public Resources Code Section 5097.94 and Health and Safety Code Section 7050.5, upon discovering or unearthing any burial site as evidenced by human skeletal remains, the person making such discovery shall immediately notify the County Coroner. The Contractor shall also notify the

Engineer. The Contractor shall immediately secure the site and protect any human remains from further disturbance.

B. Upon determination by the County Coroner that the remains are Native American, the Coroner will contact the California Native American Heritage Commission and the County Coordinator of Indian Affairs. No further excavation or disturbance within 30 feet of the site or of any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the California Native American Heritage Commission and/or the County Coordinator of Indian Affairs.

C. The Contractor is advised that if burials are encountered, it may be necessary to suspend work on the project in order to comply with the above requirements. Payment for a delay of more than 1 working day for each occurrence will be made in accordance with Article 5.04 and Article 5.05.

6.28. Delay Due to Archeological Discovery

A. The Contractor is advised that if archeological artifacts are encountered, it may be necessary to suspend work on the project in order to comply with this Article.

B. Work in areas where artifacts are found shall be restricted or stopped as directed by the Engineer until proper protocols are met.

C. Work at the location of the find shall halt immediately within 30 feet of the find. If an archaeologist is not present at the time of the discovery, the Engineer will contact an archaeologist for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code, Section 15126.4 of the California Code of Regulations (California Environmental Quality Act [CEQA] Guidelines), and the mitigation measures of the project CEQA document. If the archaeologist determines that the artifact is not significant, the Engineer will authorize the Contractor to resume construction.

D. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. The Contractor shall comply with these avoidance procedures.

E. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines.

F. The Contractor shall delay work until the Action Plan and, if required, the Data Recovery Plan, are approved by the Engineer. Once the Action Plan and the Data Recovery Plan are approved, the Contractor shall comply with the requirements of these plans.

G. Payment for a delay of more than 1 working day for each occurrence will be made in accordance with Article 5.04 and 5.05.

6.29. Noise Pollution and Vibration

A. The Contractor shall be responsible for ensuring that noise produced by construction activities does not exceed the applicable local noise ordinance standards and is in compliance with the performance standards set forth in the Special Provisions.

B. At a minimum, the Contractor shall exercise precautionary measures listed below. Installation of these measures shall in no way relieve the Contractor of the responsibility of compliance with the noise criteria.

1. Air compressors and internal combustion engines shall be in good operating condition that meet or exceed original factory specifications and shall be equipped with high-grade mufflers, air-inlet silencers, where appropriate, and noise suppressers.
2. All mobile or fixed noise producing machinery and equipment, including “package” equipment such as fans, cranes, arc-welders, air compressors, electrical operators and the like, shall be suitably housed, enclosed, shielded, equipped with noise control features, or muffled to meet the noise limits specified in the Special Provisions.
3. All mobile or fixed noise producing equipment used by the Contractor that is regulated for noise output by local, state, or federal law shall comply with such regulation while in use. This shall include vehicles licensed for use on public highways.
4. Electrically-powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.
5. The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning and emergency purposes only.
6. No music system including personal or vehicle radio, tape, or CD players or the like shall be audible at the Project right of way line.
7. Trucks or other mobile equipment shall not use engine decompression (“Jake Brakes”) for deceleration on grades, where feasible.

C. The Contractor shall take all necessary precautions during its operations to limit peak particle velocities from vibratory compaction or percussion equipment so that they do not become a public nuisance or result in property damage.

D. Any equipment causing incompliance with the noise or vibration criteria shall be removed from the job site as directed by the Engineer.

6.30. Air Pollution

A. Attention is directed to the BAAQMD and California Air Resources Board regulations. No burning will be allowed on this Project. Idling of internal combustion engines shall be held to an absolute minimum. All vehicles with internal combustion engines shall be fitted with spark arresters.

B. Rapid-cure cutback asphalt shall not be used in accordance with BAAQMD, Regulations 8, Rule 15.

C. Asbestos-containing serpentine material, as defined in the BAAQMD, Regulations 11, Rule 14, and 17 CCR 93106, shall not be used for surfacing.

D. Except as provided by law, idling of heavy duty diesel trucks with gross vehicular weight ratings of greater than 10,000 pounds shall be no more than 5 minutes per 13 CCR 2485.

6.31. Spillage and Dust

A. Care shall be taken to prevent spillage when hauling is done. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor. The Contractor shall pay all expenses for removal of spillage.

B. Dust nuisances originating from the Contractor’s operations either inside or outside the right of way shall be controlled at the expense of the Contractor in accordance with Article 5.10.

C. The Contractor shall provide all necessary precautionary measures to control dust and to prevent spillage on public traveled ways. At a minimum, the Contractor shall provide the measures listed below. Implementation of these measures shall in no way relieve the Contractor of the responsibility to comply with these Specifications.

1. Active maintenance areas, unpaved access roads, and staging areas shall be kept sufficiently moist, and watered as necessary, or shall be applied with non-toxic soil stabilizers, to control dust generation.

2. Trucks hauling sediments and other loose material shall be covered and shall maintain at least 6 inches of freeboard.

3. Tailgates of trucks shall be sealed.

4. If deemed necessary, trucks shall be brushed down before leaving the site.

5. Paved site access roads shall be swept using vacuum powered street sweepers when visible soil material is carried onto the roadway.

6. Water the excavation and grading activity during high winds, or suspend the activity, if necessary, to control dust.

7. Inactive areas shall be sprayed with soil stabilizer or seeded to avoid erosion or dust.

8. Exposed stockpiles shall be watered, enclosed, covered, or sprayed with soil stabilizers.

9. Traffic speeds within the project right of way shall be limited to 15 mph.

For off-site restriction, comply with local agencies' requirements.

10. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways.

D. Contractor shall immediately remedy any spillage and dust nuisance or deficiency arising from, or in consequence of Contractor's failure to perform the work specified in these Specifications.

E. Upon the Contractor's failure to make timely remedies determined by the Engineer to be necessary and in the best interests of the public, the Engineer may employ private or public work forces and equipment to perform the work. The actual cost of employing such forces and equipment shall be doubled and then subtracted from the monies due, or that may become due, the Contractor. Such action(s) taken by the Engineer shall not preclude the District from taking other actions as deemed appropriate, and shall not relieve the Contractor of responsibility to comply with these Specifications.

6.32. Traffic Control

A. Traffic control shall consist of all work and materials necessary to maintain safe vehicular, pedestrian, and cyclist traffic during construction and to perform "best management practices" to mitigate high peak and high volume construction traffic, prevent idling and queuing, establish site access limitations and mitigation measures, identify haul routes, and provide overall control of all construction traffic entering and exiting and operating within the project site.

B. All traffic control work shall be performed in accordance with the requirements of the local agency having jurisdiction and the State Specifications. If required, the Contractor shall prepare a traffic control plan in accordance with these Specifications, and submit to the Engineer and the local agency having jurisdiction for review in advance of the work at the site.

C. The Contractor shall cooperate with the local agency having jurisdiction relative to handling traffic around the construction area. The Contractor shall make his/her own arrangements relative to keeping the working area clear of parked vehicles to maintain sight visibility and access to adjacent properties. Existing road signs shall not be blocked at any time.

D. Truck traffic and haul routes shall be in compliance with local permits and ordinances. The Contractor shall obtain, at Contractor’s expense, any required “Haul Route Permit” from the local authority having jurisdiction for transporting to and from the project site construction materials and disposal of surplus materials.

E. The Contractor shall conduct his/her operations and schedule cleanups to cause the least possible obstruction and inconvenience to traffic, pedestrians, cyclists, and adjacent property owners.

F. Damage done by the Contractor during the course of his/her work to adjacent city, town, county, or private property shall be repaired or replaced in kind and as directed by the Engineer.

G. Personal vehicles of the Contractor's employees, and the Contractor’s equipment and vehicles shall not be parked on the traveled way, shoulders, medians or lanes which have not been approved for closure, at any time. When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic and shall travel in the direction of the traffic. Flaggers and traffic signs may be required to control this activity. No driveways or private roads shall be blocked. Safe access must be maintained for pedestrian traffic throughout the work areas at all times.

H. Those parts of public streets, rights of way, and sidewalks that are occupied by the Contractor shall be immediately vacated by him/her and returned to public use when his/her use thereof is no longer necessary for the construction work.

I. Attention is directed to Section 7-1.08, “Public Convenience”; Section 7-1.09, “Public Safety,” and Section 12, “Construction Area Traffic Control Devices,” of the State Specifications and Article 6.09, “Public Safety,” of these Standard Provisions Specifications. Nothing in these Specifications shall be construed as relieving the Contractor from his/her responsibility as provided in said Section 7-1.09, “Public Safety,” of the State Specifications.

J. The Contractor shall coordinate with the appropriate local agencies having jurisdiction to receive their approval in the event any temporary lane closures on public streets are needed for the Contractor’s operation. Any such traffic signing and flaggers as approved by the local agencies for said lane closure shall be in place prior to closing the lane to traffic.

6.33. Water Quality

A. The Contractor shall meet all applicable regulatory requirements to ensure that any discharges to surface waters will not cause violation to the State water quality objectives or violation of regulatory permits issued by regulatory agencies.

B. The Contactor shall prevent water quality degradation of water bodies and/or storm drains. Water quality is measured in terms of pollution substances, turbidity, dissolved oxygen, pH, and temperature.

C. Oily, greasy, or sediment laden substances or other materials that originate from the Contractor’s operation and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife shall not be allowed to enter, or be placed where they may later enter, any reservoir, river, creek, or stream.

D. The Contractor shall comply with the requirements of the following permits, where applicable, as specified in the Special Provisions:

1. State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

2. U.S. Army Corps of Engineers CWA Section 404 Permit and Regional Water Quality Control Board/State Water Resources Control Board CWA Section 401 Water Quality Certification.

3. Other individual RWQCB NPDES Permits.

4. Department of Fish and Game 1602 Stream Bed Alteration Agreement.

6.34. Regulated Material Management

A. Regulated material includes, but not be limited to, hazardous material and hazardous waste.

B. The Contractor is responsible, and shall obtain all required permits and pay all fees and taxes, for satisfying the requirements of any regulatory agency for the storage, monitoring, usage, transportation, safety, reporting, or any other requirements regarding the management of regulated materials on and off the project site(s).

C. The Contractor shall not allow regulated materials to spill on District property or easements or other public or private right of way. Any spillage of regulated materials resulting from the Contractor’s operation shall be removed immediately by the Contractor at the Contractor’s expense.

D. The Contractor shall immediately notify the Engineer of any potentially hazardous materials or hazardous waste encountered at the work site and shall take all necessary action to prevent exposure of personnel until all material is identified and proper action can be taken.

6.34.01. Storage of Regulated Materials

A. Prior to the storage or use of any regulated materials, the Contractor shall submit to the Engineer a “Regulated Materials Storage and Use Plan” (Plan). The Plan shall include: an inventory of all regulated materials to be stored or used at the project site (which equals or exceeds any of the following separate material phases: 55 gallons liquid, 200 cubic feet of compressed gas, or 500 lbs. solid); the maximum quantity of materials to be stored; the purpose of the materials; the

MSDS for each material; a detailed description of how the materials will be stored (including secondary containment where required by applicable regulatory agencies); a site plan drawn to scale; storage area maps drawn to scale; a detailed description of how the materials will be monitored; a detailed description of how wastes from the materials will be stored and/or disposed; and a detailed description of the procedures to be followed in the event of an uncontrolled release of the regulated materials.

B. The Plan shall be submitted to the Engineer for review, in accordance with Article 9.02, and acceptance at least 30 days prior to the storage or use of any regulated materials. The Plan shall be updated and submitted to the Engineer by the Contractor upon the addition of new regulated material not listed previously or a 100 percent (or greater) increase in quantity of a regulated material which is listed in the Plan.

6.34.02. Regulated Material Discharges or Releases

A. The Contractor is responsible for all discarded or abandoned material, including regulated materials and hazardous wastes, generated as a result of the Contractor’s operations unless specifically noted otherwise in these Specifications. The Contractor’s attention is directed to Article 5.06.

B. In the event of a discharge or release of a regulated material from the Contractor’s operation, the Contractor is responsible for notifying the proper authorities, providing containment of the material, identifying the contaminants, investigating the extent of all contaminants, testing and removing contaminated materials, disposing of contaminated materials, and verifying the removal of all contaminated materials. These activities shall be performed to the satisfaction of the Engineer at the Contractor’s cost. The Contractor shall perform any work and provide any and all documentation required by the District and federal, state, and local agencies. The Contractor shall provide copies of all correspondence and reports related to these activities to the Engineer. All work performed to accomplish these activities shall be in accordance with federal, state, and local regulations.

C. In the event of a discharge or release of regulated material, the Contractor shall notify the Engineer immediately. Immediate notifications may be verbal. The Contractor shall submit a detailed written report to the Engineer within 24 hours of the discharge or release. The written report shall include: a description of events leading to the discharge or release; action taken to prevent or control the discharge or release; a description of the discharge or release; the quantity of material discharged or released; method used to determine quantity discharged or released; type of material discharged or released; MSDS for the material(s) involved; a description of the area affected by the discharge or release; agencies notified and date and time of notification; and status of the cleanup. The report shall also include the proposed investigation, cleanup, and verification sampling activities.

D. All expenses incurred by the Contractor as a result of or to remedy the discharge or release of regulated materials shall be borne solely by the Contractor and no additional compensation will be made therefor. The Contractor shall be responsible for signing the Nonhazardous Waste Manifests and the Hazardous Waste Manifests and paying the State Superfund fees, the generator's fees, and other costs of disposal of these wastes unless specifically stated otherwise in these Specifications. The Contractor shall be identified as the owner and generator of the wastes associated with unauthorized releases or discharges.

6.34.03. Hazardous Waste

A. The Contractor shall manage the hazardous wastes generated from this operation in accordance with the Specifications below:

1. Labeling: The Contractor shall completely fill out and affix a "Hazardous Waste" label to each hazardous waste container for the Contractor's operations. Each "Hazardous Waste" label shall contain, at a minimum, the word "HAZARDOUS WASTE," information on the generator (i.e., name, address, phone number), EPA identification number for the waste stream, EPA, and/or California waste code, waste accumulation starting date, identification, and content of the waste, the physical state of the waste (i.e., solid or liquid), and the hazardous property (i.e., flammable, toxic, corrosive, reactive, or other). If the primary container is placed inside a secondary container, then the Contractor shall also prepare and affix another "Hazardous Waste" label on the secondary container.

2. Secondary Containment: The Contractor shall provide appropriate secondary containment for all storage areas for hazardous materials and hazardous wastes. In the case of an installation with one primary container, the secondary containment shall contain at least 110 percent of the volume of the primary container. In the case of an installation with multiple primary containers, the secondary containment shall contain 150 percent of the volume of the largest container or 10 percent of the aggregate internal volume of all primary containers in the storage facility—whichever amount is greater. If the storage facility or storage system is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a 24-hour rainfall as determined by a 25-year storm history.

3. Accumulation Time Limit: The Contractor shall properly haul and dispose of all hazardous waste within 90 days from the accumulation starting date identified on each "Hazardous Waste" label or on the completion date of the Contract—whichever event comes first. The waste accumulation starting date for each waste stream begins when a first drop of the waste is placed in the container.

4. Hauling and Disposal of Waste: The Contractor shall be responsible for using appropriate hazardous waste haulers and disposing of all

hazardous wastes in accordance with local, state, and federal regulations.

B. Waste Manifests: No later than 15 days after Contractor's request for final inspection, the Contractor shall submit copies of all Hazardous Waste Manifests signed by disposal facilities and certificates of disposal, to prove that Contractor has legally disposed such materials. Submit four (4) copies of each manifest.

6.35. Non-Regulated Materials

A. Non-regulated materials are any substance that is not required by any federal, state, or local regulations to have special management, storage, disposal or handling practices.

B. Non-regulated materials may be disposed at state-permitted, non-hazardous waste landfills.

C. For non-regulated material to be reused, or disposed on site or at a site other than a state-permitted landfill, the Contractor must obtain all required permits, agency approvals, property owner agreements, and pay all fees and taxes for all services and materials required in conjunction with the management, transportation, disposal and reuse of non-regulated materials.

6.35.01. Disposal at Other Than State-Permitted Landfills

A. The Contractor shall enter into an agreement with property owner, prior to disposal of materials, and submit a copy thereof to the Engineer, conveying a written consent from the property owner receiving the materials, providing:

1. A written authorization from property owner to accept materials at duly noting quantities, types of materials (soils, debris, etc.), and disposal property location address;

2 A written release from the property owner fully absolving the Santa Clara Valley Water District from any and all responsibility and legal liability towards any damage to life, and environment in connection with the disposal of the materials on the property.

B. The Contractor shall provide:

1. Copies of all applicable regulatory agency permits, approvals, licenses, and environmental clearances;

2. Site-specific health and ecological risk assessment and/or compliance with applicable regulatory agency regulations or guidelines, including but not limited to the Environmental Screening Levels per the latest guidelines from San Francisco Bay Regional Water Quality Control Board (SFBRWQCB);

3. Copies of documentation of communication made by Contractor with appropriate regulatory agencies on evaluation of regulatory requirements and regulatory agency approvals for disposal of materials;

4. Copies of laboratory testing reports for the materials to be disposed.

C. Within 15 days after disposal of materials at property location, the Contractor shall submit an acknowledgement, duly signed by property owner, certifying date of receipt of materials including quantity and types of materials (soils, debris, etc.) received, to prove that Contractor has disposed materials at the location designated in the agreement.

D. Waste Manifests: No later than 15 days after Contractor's request for final inspection, the Contractor must submit copies of all Non-Hazardous Waste Manifests signed by disposal facilities and certificates of disposal, to prove that Contractor has legally disposed such materials. Submit four (4) copies of each manifest.

6.36. Imported Earthfill Material

A. The Contractor shall not import earthfill material that is contaminated with regulated materials.

B. If imported earthfill materials are, or are found to be, contaminated by regulated materials, the Contractor shall immediately remove the contaminated material and dispose of it in accordance with all applicable laws, ordinances, and regulations; conduct necessary sampling and monitoring to verify that all contaminated material has been removed; and verify to the satisfaction of the Engineer and/or appropriate regulatory agencies that any surrounding areas, materials, soils, or waters have not been impacted by the contaminated materials. The subsequent disposal of the contaminated material shall be the responsibility of the Contractor. No compensation will be made to the Contractor by the District for removal, disposal, replacement, chemical analysis, or any other costs associated with the removal, disposal, and replacement of the contaminated material.

C. For each imported earthfill material to be used on the Project, the Contractor shall submit to the Engineer for review and acceptance, in accordance with Articles 9.02 and 19.01, an "Imported Materials Certification Form." Copies of the form are available from the Engineer. If the imported earthfill materials are to be obtained from more than one source, the Contractor shall submit a separate form for each source of earthfill material. This form shall be submitted for review and acceptance at least 30 days prior to the delivery of the earthfill material to the construction site.

D. The Engineer may obtain soil samples from the site and test them to monitor Contractor's compliance with these provisions.

6.37. Migratory Birds, Other Wildlife and Fish Species

A. The Contractor shall comply with all applicable federal and state laws, rules and regulations related to protection of migratory birds. The Contractor's attention is directed to the federal Migratory Bird Treaty Act (16 USC 703-712 50 CFR Part 21 and 50 CFR Part 10), and the California Department of Fish and Game Code Sections 2000, 3503, 3503.5, 3513, and 3800, that protect migratory birds, their nests, and their eggs from disturbance or destruction.

B. The Contractor shall ensure that birds are not allowed to nest in areas that may be impacted by the Project and shall not harm, or allow to be harmed, any migratory birds per provisions of all applicable statutes.

C. The contractor shall comply with all regulatory and permit requirements pertaining to other wildlife and fish species with the potential to occur within the project area.

6.38. Good Neighbor Requirements

A. The District is a public entity which takes seriously its responsibility to be a "Good Neighbor." Accordingly, the District seeks to perform its activities, including construction of its facilities, in a manner that takes into consideration the needs of the neighborhood, and is minimally disruptive.

B. The Contractor hereby acknowledges the critical importance of meeting the Contract requirements as set forth in these Specifications regarding the "good neighbor requirements", which include, but not be limited to: public safety, working hours, noise pollution and vibration, air pollution, spillage and dust, traffic control, parking restrictions, and storm water pollution.

C. The Contractor agrees to adhere to the above "good neighbor requirements" which relate to the lessening of the impact which the work being performed under this Contract, might otherwise have upon the surrounding neighbors. The Contractor acknowledges that its responsibility to observe the restrictions of this Contract relating to the above requirements is significant, critical, and a material provision of this Contract. Therefore any breach of any applicable provision related to these requirements constitutes a material breach of this Contract which shall give rise to the right on the part of the District to immediately terminate this Contract, without any further showing of cause.

D. No decision, action or inaction on the part of the District with respect to one such violation may be deemed to be a waiver of any remedy available to the District in the event of any other violation of the provisions of this Contract, including the right to terminate this Contract at any time and at any stage of the work should a material breach occur.

SECTION 7. PROSECUTION AND PROGRESS OF WORK

7.01. Assignment

A. The performance of the Contract may not be assigned except upon the written consent of the Board of Directors. Consent will not be given to any proposed assignment which would relieve the original Contractor or surety of their responsibilities under the Contract.

B. The Contractor may assign moneys due, or to become due under the Contract, and such assignment will be recognized by the District, if given proper notice thereof, to the extent permitted by law, but any assignment of moneys shall be subject to all proper setoffs in favor of the District and to all deductions provided for in the Contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the District for the completion of the work in the event that the Contractor should be in default therein.

7.02. Notice to Begin Work

A. The Notice to Begin Work will be issued by the Designated Engineer within 10 days after receipt of the signed Agreement, and approval by District of the Contract Bonds and insurance documents. Reference is made to Article 4.04.

7.03. Commencement of Work

A. The Contractor shall not begin work until receipt from the District of the Notice to Begin Work, and shall, upon receiving Notice, begin work within the time specified in the notice. The time specified in said Notice will allow a period of at least 10 days after the date of said Notice for commencement of work. After receipt of said Notice, the Contractor shall diligently prosecute the Work to completion. The Contractor shall provide, at least 24 hours in advance, written notice to the Engineer of the Contractor’s intention to start Work and specify the date on which the Contractor intends to start.

7.04. Work Progress Schedule

A. If required by the Special Provisions, the bidder to whom the Contract is awarded shall, prior to execution of the Contract, submit a practicable work schedule to the Engineer, showing the order and dates within which the Contractor proposes to carry out the work.

B. If required by the Engineer, the Contractor shall submit supplementary work progress schedules to indicate approximately the percentage of work scheduled for completion at any time.

C. The progress schedule and supplementary progress schedules submitted shall be consistent, in all respects, with the time requirements of the Contract.

7.05. Temporary Suspension of Work

A. By written order to the Contractor, the Engineer may suspend the work wholly or in part for an indefinite period, or for such period as the Engineer may deem necessary, for any of the following reasons:

1. Weather conditions or other conditions which are unfavorable for the proper prosecution of the work;

2. Failure of the Contractor to carry out orders given or to perform any provisions of the Contract; or

3. The convenience and benefit of the District.

B. Such suspension shall be effective upon receipt by the Contractor of the written order suspending the work and shall be terminated upon receipt by the Contractor of the written order terminating the suspension.

C. If, under authority of (A.1) or (A.3) above, the Engineer orders a suspension of all or a portion of the work which is the current controlling operation, it will be cause for a time extension if it affects the controlling item of work.

7.06. Liquidated Damages

A. In case all the work called for under the Contract in all parts and requirements is not finished or completed within the number of days as set forth in the Special Provisions, it is agreed that damage will be sustained by the District, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the District will sustain in the event of and by reason of such delay; and it is, therefore, agreed that the Contractor will pay to the District the sum set forth in the Special Provisions per day for each and every day's delay in finishing the work in excess of the number of days prescribed; and the Contractor agrees to pay said liquidated damages herein provided for, and further agrees that the District may deduct the amount thereof from any moneys due, or that may become due, to the Contractor under the Contract.

7.07. Termination of Control

A. Failure to supply an adequate working force or material of proper quality, or in any other respect to prosecute the work with the diligence and force specified by the Contract, is grounds for termination of the Contractor's control over the work and for taking over the work by the District.

7.08. Termination of Contract

A. The District may terminate the Contract at any time upon a determination that the same is in the best interests of the District. Upon such termination, the rights, duties, and obligations of the parties shall be as stated in Section 8-1.11 of the

State Specifications, wherein the words “Director” and “Engineer” shall mean the Engineer, and the words “State” and “Department” shall mean District.

7.09. Contractor’s Cost Data

A. The District or any of its duly authorized representatives shall, until the expiration of 4 years after filing the Notice of Completion and Acceptance under this Contract or any subcontract under it, have access to and the right to examine any of the Contractor’s or subcontractor’s payrolls, records of personnel, invoices of materials, records of plant and equipment costs, and any and all other directly pertinent books, documents, papers, and records of such Contractor or subcontractors, involving transactions related to said Contract or subcontracts. In the event State or Federal funds are involved in the financing of the project, the State or Federal Government shall have the same rights of inspection as the District.

7.10. Coordination With Utilities

A. In general, the location of existing utility facilities as shown on the Drawings is approximate. This information has been obtained from utility maps furnished by the various agencies involved, and the District does not guarantee either the correctness of locations or the extent of such locations.

B. Service laterals, such as house sanitary, water, electrical, gas, cable TV, storm or telephone cables, or appurtenances, may not all be shown on the Drawings. Section 4215 of the California Government Code does not require public agencies to indicate the presence of service laterals or appurtenances whenever the presence of such utilities can be inferred from the presence of other visible facilities, such as buildings, meter boxes, or junction boxes, on or adjacent to the construction site. No changes in the Contract price or Contract time will be made due to the presence of unidentified or incorrectly located service laterals or appurtenances. It shall be the responsibility of the Contractor to ascertain the exact location of the utility facilities.

C. Unless otherwise indicated on the Drawings or specified in the Specifications, the Contractor shall maintain in service all utilities including house services, power, lighting, and telephone conduits, and any other surface or subsurface structure or facility of any nature that may be affected by the work; provided, however, that the Contractor, for convenience, may arrange with the owner to temporarily disconnect house service lines or other facilities along the line of the work. The cost of disconnecting and restoring such utilities shall be borne by the Contractor.

D. In the event that a main or trunk line utility facility is encountered which interferes with the work and is neither shown on the Drawings nor specified in the Specifications, the Contractor shall immediately notify the District in writing. The District will either have the appropriate utility company or public agency relocate the facility, or the District will direct the Contractor to relocate the facility in accordance with Article 5.03, Change in Work.

E. In the event that a main or trunk line utility facility is encountered which interferes with the work and which the Contractor believes is not shown on the Drawings or indicated in the Specifications with reasonable accuracy, the Contractor shall immediately notify the District in writing. Reasonable accuracy is defined as being within the tolerances noted on the Drawings. If the Engineer determines that the main or trunk line utility facility was shown on the Drawings or indicated in the Specifications with reasonable accuracy, the Contractor shall be solely responsible for relocation or removal, and no additional time will be granted nor will additional compensation be made for any additional work required. If the Engineer determines that the main or trunk line utility facility was not shown on the Drawings or indicated in the Specifications with reasonable accuracy, the District will either have the appropriate utility company or public agency relocate the facility, or the District will direct the Contractor to relocate the facility in accordance with Article 5.03, Change in Work.

F. When a delay in the completion of the project is caused by the failure of the District or the owner of a utility facility to provide for removal or relocation of existing main or trunk line utility facilities which are not shown on the Drawings or indicated in the Specifications, or which are not shown on the Drawings or indicated in the Specifications with reasonable accuracy, the Contract time will be extended in accordance with Article 5.05, Change of Contract Time.

SECTION 8. MEASUREMENT AND PAYMENT

8.01. Measurement of Quantities

A. All work except work based on time and materials will be paid for at a contract price per unit of measurement and will be measured by the Engineer in accordance with the United States Standard Measures. Unless otherwise specifically provided, the Engineer will compute quantities by a method which, in the Engineer's opinion, is best suited to obtain an accurate determination. The weights of metalwork, pipe, and other metal parts to be paid for on the basis of weight, will be determined by the Engineer. The District will not provide scales for weighing material. The Engineer will determine the weight of each part or item in the most practicable manner and will use for that purpose manufacturer's weights, or in their absence, catalog weights or estimated weights, in that order; provided, that weights of nonmetallic coatings will be excluded.

8.02. Deductions From Payments

A. The District may, at its option and at any time, retain out of any amounts due the Contractor, sums sufficient to cover claims, filed pursuant to Section 3179 et seq. of the Civil Code.

8.03. Progress Payment

A. On the 25th of each month, the Contractor will prepare and submit to the District an estimate in writing of the total amount of work done; an estimate of the acceptable materials furnished and delivered by the Contractor to the jobsite and not used up to the date of such estimate, and the value thereof. Small/Micro Business Enterprise (SBE) Utilization Report, if required, must be submitted with the payment request. The Contractor must also submit the certified weekly payroll(s) for the pay estimate period in accordance with Article 6.04.C. Each progress pay request is to include payment for work completed up to and including the 25th of the month. Acceptable materials shall be those materials which will become a part of the finished construction work. The basis for partial payments of lump sum or other unit Contract items will be determined by agreement between the Engineer and the Contractor.

B. Payment requests shall be submitted on an approved Contractor Monthly Progress Pay Estimate Summary sheet. The pay request submitted by the Contractor shall contain a source document which provides back-up information on how the estimate was prepared. A source document is defined as the basic document used to record or calculate quantities. The source document must contain the appropriate Contract Bid Item, the location of the installation, the necessary measurement and/or calculations, and the name of the person preparing the document. Before any partial payment or the final payment is made, the Contractor shall submit satisfactory evidence that the Contractor is not delinquent in payments to employees or creditors (for example, subcontractors, suppliers, etc.) for labor and materials incorporated into the work. Request for payment of work performed on extra work shall be accompanied by the Daily

Extra Work Report Form FC204w. The form shall be signed by both the District inspector and the Contractor's representative.

C. Upon receipt of a payment request, the District shall review the payment request for the purpose of determining that the payment request is a proper payment request. Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor no later than seven days, after receipt. A payment request returned pursuant to this paragraph shall be accompanied by a letter citing the reasons why the payment request is not proper. The following are examples of an improper payment request:

1. The item of work requested to be paid was not performed.
2. The work being requested to be paid has already been paid in previous Progress Pay Estimates.
3. The work performed and requested to be paid was not done in accordance with the contract (non-compliance).
4. The quality of the finished product is unacceptable.
5. The source documentation is inaccurate.
6. The Daily Extra Work Reports (for extra work) are not properly filled out.
7. Failure to submit SBE Utilization Report, if required.

D. If the District fails to make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

E. The number of days available to the District to make a payment without incurring interest pursuant to this Section shall be reduced by the number of days by which the District exceeds the seven-day return requirement set forth in paragraph A.

1. The District shall retain five percent of such estimated value of work done and five percent of the value of the materials so estimated to have been furnished and delivered and unused as aforesaid, and shall pay to the Contractor, while carrying on the work, the balance not retained as aforesaid, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the Contract. No such estimate or payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the Contract, or when, in the Engineer's judgment, the total value of the work done since the last estimate amounts to less than $1,000. No such estimate or payment shall be considered to be an acceptance of any defective work or improper materials. All progress

estimates and payments shall be subject to correction in the final estimate.

2. At the request of the Contractor, the District will permit the substitution of securities or certificates of deposit equivalent to the amount of any monies withheld by the District as above provided. The deposit shall, in that event, be with the District, or with a state or federal chartered bank in California as the escrow agent.

3. Alternatively, on written request of the Contractor, the District will make payments of the retention as it is earned directly to the escrow agent.

F. The Contractor shall bear the expense of the District and the escrow agent in connection with the escrow deposit made.

G. Securities or certificates of deposit to be placed in escrow shall be subject to approval of the District and, unless otherwise permitted by the escrow agreement, shall be of a value of at least equivalent to the amounts of retention to be paid to the Contractor pursuant to this Section.

H. When the District makes payment of retentions directly to the escrow agent, the Contractor may direct, subject to approval of the District, the investment of the payments into securities.

I. The Contractor shall enter into an escrow agreement satisfactory to the District, which agreement shall be substantially similar to that specified in Section 22300 of the Public Contract Code.

J. The Contractor shall obtain the written consent of the surety to such agreement.

8.04. Final Payment

A. As soon as practicable after completion of the work, the Engineer will prepare in writing and furnish to the Contractor the final estimate of the quantities of work done and all payments due under the Contract, which estimate will show deductions for prior payments and any other amounts to be retained under Article 8.02. The amount determined due, less the amount retained, will be paid. This retained amount will not be due or payable until 35 days after the completion of the work and the filing of Notice of Completion and Acceptance in the manner provided by law, and until after the Contractor has furnished the District a release of all claims by the Contractor against the District arising by virtue of this Contract, except such claims in definite amounts as the Contractor may specifically exempt from the operation of the release and the furnishing of any guaranty required by Article 3.11.

8.05. Scope of Payment

A. Payment for all items of work at the unit or lump sum price shall be considered as full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the item of work, and no additional allowance will be made therefor. Payment for items of work which are called for in the Specifications or shown on the Drawings but which are not separately identified in the Proposal form shall be compensated as part of the bid price of one or more of the items which are listed, and no additional allowance will be made therefor.

8.06. Acceptance of Final Payment Constitutes Release

A. Acceptance by the Contractor of final payment constitutes and shall be a release by the Contractor of all claims against the District, except disputed contract claims in stated amounts specifically excepted in writing.

8.07. Small/Micro Business Enterprise Utilization Reporting Requirement

A. The Contractor must submit the properly completed SBE Utilization Report with the request for progress payment and request for final payment. All payment requests must include the Report, if required, to be considered a "properly submitted payment request."

SECTION 9. CONTROL OF WORK

9.01. Authority of Engineer

A. The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed and rate of progress of the work, all questions which may arise as to the interpretation of the Drawings and Specifications, and all questions as to the acceptable fulfillment of the Contract on the part of the Contractor. The Engineer's decision shall be final. The Engineer shall have authority to enforce and make effective such decisions and orders which the Contractor fails to carry out promptly.

9.02. Submittals to Be Furnished by the Contractor

A. The Drawings listed in the Specifications shall be supplemented by the Contractor with such submittals as may be required for the prosecution of the work and approval of equipment. Submittals may include shop detail drawings, fabrication drawings, falsework and formwork drawings, pipe layouts, and similar classes of drawings, calculations, specifications, product data, samples, manuals, spare parts, photographs, survey data, schedules, or similar items required to be submitted to the Engineer by the Contract Documents. These submittals shall be favorably reviewed by the Engineer before any work involving these submittals is performed. No change shall be made by the Contractor to any submittal after it has been favorably reviewed by the Engineer. Submittals shall contain all required detailed information at a reasonable scale with enough views to clearly show the work to be done or the item to be furnished, and shall be properly checked.

B. It is expressly understood, however, that Engineer's review of the Contractor's submittals shall not relieve the Contractor of any responsibility for accuracy of dimensions and details, or for mutual agreement of dimensions and details. The Contractor shall be solely responsible for agreement and conformity of submittals with the Contract Drawings and Specifications.

C. The sequence of submission of submittals shall be such that all information is available to the Engineer for review of each submittal as it is received. Five copies of each submittal shall be submitted. For submittals that require Engineer's review, one copy will be returned to the Contractor marked "No Exceptions Noted," "Make Corrections as Noted," "Revise and Resubmit," or "Rejected" within 20 days after receipt. The Contractor shall make any necessary corrections and revisions to returned submittals and shall resubmit the submittals within 20 days after receipt. For items that are required to be submitted to the Engineer but which do not require review, one copy will be returned to the Contractor marked "In Receipt Of." The Contractor is responsible for furnishing submittals in sufficient time for approval action, including resubmittal, without delaying construction.

D. If a returned submittal is required to be resubmitted more than once due to Contractor's failure to comply with submittal requirements, the Contractor may be charged all costs associated with re-review of the submittal. The charges may be deducted from progress payment due or become due to the Contractor and shall be based on actual review hours recorded by the Engineer. The hourly rate of the Engineer, and/or Engineer's consultant, shall be the actual wages times a multiplier specified in the Special Provisions.

9.02.01. Submittal Requirements

A. All submittals shall be clearly identified by reference to the Project name, specification section, article, paragraph, drawing number or detail as applicable. Submittals shall be well-organized, and shall be clear and legible and of sufficient size for clear presentation of data. Data submitted shall describe the materials, equipment, or other items to be furnished and, where applicable, the system in sufficient detail to indicate full compliance with the requirements of these Contract Documents.

B. All submittals shall be in the English language and customary American units (feet, inches, pounds, degrees Fahrenheit, etc.). Metric units may be provided in addition to customary American units.

C. All submittals and supporting data, catalogs, schedules, etc., shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy, completeness, coordination and conformance with the Contract Documents. These submittals may be prepared by the Contractor, subcontractors, or suppliers, but the Contractor shall review and ascertain that submittals meet all of the requirements of the Contract Documents, while conforming to structural, space and access conditions at the point of installation prior to submission to the Engineer. Designation of work "by others," if shown in submittals, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor of supplier who prepared these submittals. The Contractor shall ensure that there is no conflict with other submittals. The Contractor shall ensure coordination of submittals among the related crafts and subcontractors.

D. If the submittals show any deviations from the Contract requirements, the Contractor shall include with the submittal a separate written description of such deviations and the reasons therefor. The Engineer will respond in writing within 10 days indicating the time necessary to evaluate the deviations. If any deviations from the Contract requirements are not clearly noted and prominently identified on the submittal, the review of the submittal shall not constitute acceptance of such deviations.

E. The Contractor shall check all submittals before submitting them to the Engineer and shall certify on each transmittal letter and on each submittal that the submittal has been checked, is in compliance with the Contract Documents except as specifically noted, and that each deviation from the Contract Documents is specifically noted.

F. Submittals shall include:

1. A separate transmittal form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete Specification Sections or Articles, for which a submittal is required. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole. The Specification Section or Article to which the submittal is related shall be indicated on the transmittal form.

2. A sequential number, in chronological order, shall be assigned for each submittal and shall be noted on the transmittal form. Submittal numbers shall have the following format: "XXX.Y"; where "XXX" is the sequential number (001 to 999) assigned by the Contractor, "Y" is the resubmittal number (1 to 9). For each item submitted, the Contractor shall include the applicable Article number on the submittal and on the transmittal form.

3. A separate written description of deviations from the Contract Documents, if any.

4. The date of submission and the dates of any previous submissions.

5. District's Name, the Project title and number.

6. Contractor identification.

7. The names of (as applicable):

   a. Subcontractor
   b. Supplier
   c. Manufacturer

8. Identification of the product, with the Specification Section or Article number, page and paragraph(s).

9. Field dimensions, clearly identified as such.

10. Relation to adjacent or critical features of the work or materials.

11. Applicable standards, such as ASTM.

12. Identification of revisions on resubmittals.

G. All resubmittals shall be accompanied by a memorandum or letter from the Contractor that responds to each written review comment provided by the Engineer in the previous submittal. Each response shall describe the corrective action taken or reason for Contractor's actions.

9.02.02. Submittal Review Procedures

A. Review of submittals has as its primary objective the completion of the work in full conformance with the Contract Documents, unmarred by field corrections, and within the construction time provided. In addition to this primary objective, submittal review as a secondary objective will assist the Contractor in its procurement of equipment that will meet all requirements of the Contract

Documents, will fit the structures detailed on the Drawings, will be completed with respect to piping, electrical, and control connections, will have the proper functional characteristics, and will become an integral part of a complete operating facility.

B. The review of shop drawings, product data, and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:

1. as permitting any deviation from or non-compliance with the Contract requirements;
2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.

C. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

D. If the Contractor submits an incomplete submittal, the submittal will be considered “Rejected” and will be returned to the Contractor without review except that the Engineer may, at Engineer’s sole discretion, elect to provide a list of, or mark the submittal indicating some or all of the areas that are incomplete. A complete submittal shall contain sufficient data to demonstrate that the items comply with the Contract Documents; shall meet the minimum requirements for submissions cited in the technical specifications; and shall include any necessary revisions required for equipment other than first named manufacturer. The Engineer’s determination whether a submittal is complete shall be final.

E. After review by the Engineer of each of the Contractor’s submissions, the material will be returned to the Contractor with actions defined as follows.

1. NO EXCEPTIONS NOTED

   The favorable review of submittal is subject to its compatibility with future submissions and additional partial submissions for portions of the work not covered in this submission. It does not constitute approval or deletion of specified or required items not shown in the partial submission. The Contractor may proceed with the work shown in the submittal.

2. MAKE CORRECTIONS AS NOTED

   Same as 1, except that minor corrections as noted shall be made by the Contractor. Contractor may proceed with the work providing corrections have been made. Resubmission is not required.

3. REVISE AND RESUBMIT

   Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent resubmission. The Contractor may not proceed with the work shown in the submittal.

4. REJECTED

   Submitted material does not conform to Drawings and Specifications in major respect., i.e.: wrong size, model, capacity, or material. The Contractor may not proceed with the work shown in the submittal.

5. IN RECEIPT OF

   The submittal does not require review by the Engineer.

F. Resubmittals will be processed in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions from previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor and if any such revisions are installed, all portions thereof that do not fully conform to the Contract Documents shall be corrected by the Contractor at its expense as required by the Engineer.

G. The favorable review of submittals (returned “No Exceptions Noted” or “Make Corrections as Noted”) shall be obtained from the Engineer prior to the fabrication, delivery, and construction of items requiring submittals.

H. The favorable review of all submittals (returned “No Exceptions Noted” or “Make Corrections as Noted”) shall apply in general design only and shall in no way relieve the Contractor for responsibility for errors or omissions contained therein. Favorable review shall not relieve the Contractor of its obligation to meet safety requirements and all other requirements of laws, nor constitute a change order authorization. Favorable review will not constitute acceptance by the District of any responsibility for the accuracy, coordination, and completeness of the submittals or the items of equipment represented on the submittals.

9.03. Drawings and Data to Be Furnished by the District

A. The District may issue supplemental Drawings for the construction work under the Contract. These Drawings will show additional details as required for construction purposes. Installation instructions for District-furnished materials will be furnished if required.

9.04. Superintendence

A. The Contractor shall designate, in writing before starting work, an authorized representative who shall have complete authority to represent and act for the Contractor. Said authorized representative of the Contractor shall normally be present at the site of the work at all times while work is actually in progress on the Contract. During any period when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.

B. Whenever the Contractor or an authorized representative is not present on any part of the work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the superintendent who may have charge of the particular work in reference to which the orders are given. Any order given by the Engineer, not otherwise required by the Specifications to be in writing, will, on request of the Contractor, be given or confirmed by the Engineer in writing.

C. The Contractor shall designate, in writing, the names and telephone numbers of at least three representatives who could be contacted at any time in the event that an emergency occurs.

9.05. Character of Workers

A. Any subcontractor, or person employed by the Contractor or subcontractor, who fails or refuses to carry out the directions of the Engineer, or appears to the Engineer to be incompetent or to act in a disorderly or improper manner, shall be removed from the work immediately on the written request of the Engineer, and such person shall not again be employed on the work.

9.06. Layout of Work and Surveys

A. The Engineer will establish lines and grades required for proper execution of the work. The Contractor shall, without additional cost to the District, give such assistance and provide such drill holes, forms, ladders, spikes, nails, and lights as may be required by the Engineer in layout of work and surveys. The Contractor shall adjust construction operations at such points and for such reasonable time as may be necessary to assist in the layout of work and surveys.

B. The District will provide only the minimum of survey crew services essential to orderly performance of the work, and District survey crews will not be available at all times for the work under these Specifications.

C. When the Contractor requires stakes or marks, the Engineer shall be notified of such requirements a reasonable length of time in advance of starting operations that require such stakes or marks. In no event shall a notice of less than five working days be considered a reasonable length of time.

D. Where construction operations require removal of the District’s stakes or other survey marks, the Contractor shall reference such points in an approved manner. Survey stakes or marks established by the District shall be preserved by the Contractor until their removal is authorized, and in case of their unauthorized destruction or removal by the Contractor’s forces, they will be replaced at the Contractor’s expense. Any cost to the District of replacing survey stakes or marks will be deducted from payments due the Contractor. Such cost will include a reasonable charge for use of District supplies, labor and equipment, plus overhead.

9.07. Inspection

A. The Engineer shall at all times have access to the work during its construction, and shall be furnished with every reasonable facility for ascertaining that the materials and the quality of performance are in accordance with the requirements and intentions of the Drawings and Specifications. All work done and all materials furnished shall be subject to the Engineer’s inspection and approval.

B. The day-to-day inspection performed by the various inspectors employed by the District shall not constitute approval or ratification of work improperly done by the Contractor. The Engineer is the only person authorized to recommend acceptance or rejection of work and materials.

C. The presence or absence of an inspector during performance of the work shall not relieve the Contractor of any obligation to fulfill the Contract. It shall be the duty of the Contractor to see that all provisions are complied with in detail, irrespective of the inspection given the work during its progress by the Engineer or representatives of the Engineer. Any plan or method suggested to the Contractor by the Engineer or an inspector, but not specified or required, if adopted or followed in whole or in part, shall be used at the risk and responsibility of the Contractor; and the District and the Engineer will assume no responsibility therefor.

D. Should it be considered necessary or advisable by the District at any time before acceptance of the entire work to make an examination of work already completed by removing or tearing out same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect, due to the fault of the Contractor or subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, an equitable adjustment shall be made in the Contract price to compensate the Contractor for the additional services involved in such examination and reconstruction and, if completion of the work has been delayed thereby, the Contractor shall, in addition, be granted a suitable extension of time.

E. Projects financed in whole or part with federal or state funds shall be subject to inspection at all times by the federal or state agency involved.

F. No portion of any work, installed materials, products, or equipment, shall be covered or concealed in any manner without first being inspected by the Engineer. Whenever the Contractor is ready to backfill, bury, cast-in-concrete, hide, or otherwise cover any work under this Contract, the Contractor shall notify the Engineer not less than one Work Day in advance to request inspection before beginning any such work of covering. Failure of the Contractor to notify the Engineer at least one Work Day in advance of any such inspections shall be reasonable cause for the Engineer to order a sufficient delay in the Contractor's schedule to allow time for such inspection. If any work, materials, products, or equipment is covered prior to inspection or the express approval of the Engineer, that work, materials, products, or equipment shall be uncovered at no additional cost to the District. All associated costs, including its impact on other portions of the work, shall be borne by the Contractor.

G. The Contractor shall not conceal any part of the work until record drawing information has been taken and recorded by the Contractor.

H. The Engineer, at District's cost, may attend scheduled off-site plants for inspection of equipment, materials, or software to be incorporated into the work. Should such inspection attended by Engineer be delayed, the Contractor shall reimburse the District for the actual salary costs of Engineer times the overhead rate specified in the Special Provisions and the actual cost of other direct costs incurred due to the inspection delay.

I. The Contractor shall accommodate inspection at the place of origin of materials, product, and equipment if specified or requested by the Engineer.

J. The Contractor shall provide safe passage and access for inspection of the work in any area. Off-site storage areas and warehouse facilities are also subject to inspection if payment for any equipment or materials stored at these locations is claimed for progress payment.

9.08. Defective and Unauthorized Works

A. All work which has been rejected shall be remedied or removed and replaced by the Contractor in an acceptable manner at no additional cost to the District.

B. Payment will not be made for any work done beyond the lines and grades shown on the Drawings or established by the Engineer, or any extra work done without written authority, and such work will be considered as unauthorized. Work so done may be ordered remedied, removed, or replaced.

C. If the Contractor should fail to comply promptly with any order of the Engineer made under the provisions of this Article, the Engineer may cause rejected or unauthorized work to be remedied, removed, or replaced, and the costs thereof to be deducted from any moneys due or to become due the Contractor.

9.09. Construction Equipment and Plant

A. The Contractor shall provide and use construction equipment and plant capable of producing the quality and quantity of work required. Construction equipment shall be identified by readily visible numbers. If ordered, Contractor shall remove unsatisfactory construction equipment and discontinue the operation of unsatisfactory plants.

9.10. Final Inspection and Acceptance of Work

A. When the work authorized by the Contract has been completed, the Engineer will make the final inspection. If the Engineer determines that the work has been completed, in accordance with the Contract, the Engineer will recommend that the work be accepted. The Contractor will be relieved of the responsibility imposed by Article 6.15 on the date of acceptance.

9.11. Use Prior to Acceptance

A. The District may take possession of, and use, all or part of the project prior to acceptance.

SECTION 10. CONTROL OF MATERIALS AND INSTALLED EQUIPMENT

10.01. Furnishing and Quality of Materials and Equipment

A. Contractor shall furnish materials and equipment as specified.

B. Only materials and equipment conforming to the requirements of the Contract shall be incorporated in the project. Except as otherwise specified or approved, materials and equipment shall be new and unused.

10.02. Source of Materials and Equipment

A. The Contractor shall furnish a list of sources of materials and equipment to the Engineer on a District form in sufficient time to permit proper inspection and testing of materials and equipment in advance of their use. Inspection and tests will be made and reports rendered, but it is understood that such inspections and tests shall not be considered as a guarantee of acceptance of any material or equipment which may be delivered later for incorporation in the work. No equipment or materials which, after approval, have in any way become unfit for use, shall be used in the work.

B. At the option of the Engineer, the source of supply of each of the materials shall be approved before the delivery is started. All materials proposed for use may be inspected or tested at any time during their preparation and use. After trial, if it is found that sources of supply which appeared satisfactory do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved material from other sources.

10.03. Product Data and Samples

A. The Contractor shall submit five copies of approval data for materials and equipment proposed for installation. Approval data shall consist of complete material and equipment lists accompanied by catalog data sheets, cuts, performance curves, diagrams, or similar descriptive material. Material and equipment lists shall give, in each case, the name of the manufacturer, trade name, catalog reference, size, finish, and all other pertinent data. It is intended that approval data should not include such materials as small pipe and small pipe fittings, conduit and conduit fittings, or tubing. The Contractor shall furnish operation and maintenance manuals or instructions if required by the Special Provisions.

B. The Contractor shall furnish without charge such samples as may be required.

10.04. Storage of Materials and Equipment

A. Materials and equipment shall be so stored as to ensure the preservation of their quality and fitness for the work. They shall be placed under cover when necessary and shall be stored in a manner that will facilitate prompt inspection.

10.05. Defective Materials

A. All materials not conforming to the requirements of the Contract shall be considered as defective and all such materials shall be rejected, whether in place or not. They shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used unless approval in writing has been given by the Engineer. If the Contractor should fail to comply promptly with any order of the Engineer made under the provisions of this Article, the Engineer may cause defective materials to be removed and replaced, and the costs thereof to be deducted from moneys due, or to become due, the Contractor.

10.06. Equal, Sole or Single Source, and Substitution

A. Specified Item: Material, equipment, product, thing, or service referenced in the Contract Documents that has been identified by specific brand, manufacturer, catalog number, or trade name.

B. Equal Items: Items, as referenced in these Contract Documents are those, which, to the Engineer’s knowledge, meet the requirements of the Contract Documents and are considered equal to the specified items.

C. Substitutions: Substitutions are considered changes to the Contract.

D. Sole source/single source: If the material or equipment specification lists only one manufacturer, catalog number, or trade name, and is followed by the designation “no equal,” “no others acceptable,” “no alternatives allowed,” “no other manufacturers accepted,” and similar language, then the material or equipment is designated to be a sole source item based on one or more of the reasons stated in the Public Contract Code 3400 (b). No substitution of sole-source items will be allowed.

E. Whenever an item has been designated in the Contract Documents as described in paragraph A, such designations shall be deemed to be used for the purpose of facilitating the description of the Specified Item and shall be deemed to be followed by the words “or equal,” whether explicitly stated or not. Unless specifically noted to the contrary (see Paragraph D above), if only one manufacturer, catalog number, or trade name is listed, it is the only product known to the District that meets the requirements of the Contract Documents, but this does not preclude the provision of materials or equipment which are equal to the specified item.

F. Submission of items which are proposed as equal to the Specified Items will be evaluated in accordance with the following provisions:

1. The Contractor shall submit to the Engineer in accordance with Public Contract Code Section 3400, after contract award, no later than 35 days after the date of Notice to Begin Work, proposal for replacement of a Specified Item with an Equal Item. At the sole discretion of the Engineer,

District may give written consent to the submission of the proposed Equal Item after the expiration of the thirty-five (35) day time limit.

2. Burden of proof as to the submitted items being equal to the Specified Items is the responsibility of the Contractor.
3. The Contractor shall submit sufficient data, drawings, samples, literature, calculations, and all other information requested by District to demonstrate to the Engineer that the proposed items are equal to the Specified Items.
4. Failure of the Contractor to submit the proposed Equal Item for review in the manner and time described above shall be sufficient cause for rejection by the Engineer of the proposed Equal Item.
5. The Engineer's evaluation of the submitted items proposed as being equal to the Specified Items is based on, but not limited to, the following:
    a. Performance;
    b. Functionality, efficiency;
    c. Durability;
    d. Life cycle costs;
    e. Ease and economy of maintenance and operation;
    f. Construction and physical characteristics as compared to the specified items, or as delineated in the Contract Documents;
    g. Dimensional compatibility with the materials it combined to produce a unified design system;
    h. Compatibility with products in use;
    i. All aspects of finished appearance including form, texture and color, that may affect other design elements;
    j. Impacts to Project design, construction schedule, or construction sequencing.
6. The Engineer will be the sole judge in this matter. In the event the Engineer rejects the proposed items, the Contractor shall submit the Specified Items.

G. Submission of items which are proposed as substitutions of the Specified Items shall be subject to the following provisions:

1. Except for the 35-day time limit specified in F.1, all provisions and evaluation criteria under Paragraph F above shall apply to the proposed substitutions.

2. Unless a written consent is provided by the Engineer, no submission of proposed substitutions will be accepted nor considered by the Engineer prior to contract award.

3. Other additional provisions and/or criteria as deemed necessary by the Engineer.

4. Substitution(s) of Specified Item(s) proposed by the Contractor may require modifications in the Project design, Project schedule, and/or construction sequencing. The Contractor shall identify all necessary project modifications required for the substitution(s). Necessary project modifications may include, but not be limited to, electrical, instrumentation, structural, mechanical, architectural, testing, engineering costs, and other related modifications.

5. The Contractor is responsible for all costs associated with the substitution(s), including submittal reviews and any project redesigns and modifications. Contractor refusal to accept any of these costs shall be just cause for disapproval of the substitution(s).

6. District will review and respond in writing to the Contractor's proposed substitution within twenty-one (21) days after receipt of all information District requires to make a final determination.

7. If the proposed items are accepted, 50 percent of all savings shall be credited to the District.

10.07. Testing Materials

A. Unless otherwise specified in the Special Provisions or Technical Provisions or called for on the Drawings, the work shall be tested by the District or its authorized representative in order to determine compliance with the Drawings and the Specifications.

B. Whenever a reference is made to a specification or test designation, whether of the American Society of Testing Materials, the American Water Works Association, or any other authority, and the number accompanying the specification or test method representing the year of its acceptance or adoption is omitted, the reference shall mean the specification of test method in effect on the date of the Notice to Bidders.

C. Whenever said specification or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of material, shall be furnished to the Engineer. The manufacturer's test reports shall supplement the inspection, sampling, and testing provisions, and shall not constitute a waiver of the District's right to inspect.

10.08. Plant Inspection

A. Materials and equipment which become a part of the completed work will be subject to inspection at the place of production or manufacture, at the shipping point, or at the site of the work. Materials and equipment requiring inspection at the place of production or manufacture will be designated by the Engineer. Where plant inspection is so designated, the Engineer shall be given 14 days' advance notice of the start of manufacture or production. The Contractor's purchase orders for materials and equipment, for which plant inspection has been designated by the Engineer, shall bear a suitable notation advising suppliers and subcontractors of inspection requirements.

B. The Engineer or an authorized representative shall have free entry at all times to such parts of the plant as concerns the manufacture or production of materials and equipment for the District. Adequate facilities shall be furnished free of charge to make the necessary inspection.

C. The District assumes no obligation to inspect materials or equipment at the place of manufacture or production, or at the shipping point.

10.09. District-Furnished Materials

A. Materials furnished by the District will be available at locations designated in the Special Provisions. They shall be loaded, unloaded, and hauled to the site of the work by the Contractor at the Contractor's expense. The Contractor shall be held responsible for all materials furnished, and shall pay all demurrage and storage charges.

SPECIAL PROVISIONS

THIS PAGE INTENTIONALLY LEFT BLANK

SPECIAL PROVISIONS

SECTION 11. WORK AND SCHEDULE OF WORK

11.01. Summary of Work

A. The work to be completed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required to construct the John D. Morgan Monitoring Wells Project as shown on the Drawings and detailed in the Specifications. The project scope includes, but is not limited to, the following:

1. Drilling two borings (up to 12 inches in diameter) to a maximum depth of approximately 400 feet
2. Retrieving soil cores for analysis
3. Constructing up to five monitoring wells at various depths in the two borings
4. Constructing a temporary sound wall
5. Parking lot restriping and resurfacing following completion of drilling and well construction.

11.02. Drawings

A. Drawings accompany these Specifications and are made a part thereof. The Drawings are bound with the Specifications. Contractor's attention is directed to Appendix B.

11.03. Site Maintenance and Clean-Up

A. During construction, the Contractor shall keep the work site, areas adjacent to the work site, and access roads in an orderly condition, free and clear from debris and discarded materials. Care shall be taken to prevent spillage when hauling is done. Any spillage or debris resulting from Contractor's operation shall be immediately removed by the Contractor. The Contractor shall not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or stream channels.

B. Upon completion of work, the Contractor shall remove from the work site and areas adjacent to the work site, all building materials, debris, unused materials, concrete forms, and other materials used during the construction belonging to the Contractor. All access roads and maintenance roads shall be graded, removing wheel tracks and smoothing up such roads. See Article 21.06 for Final Cleaning.

11.04. Time Allowance for Completion of Work

A. The Contractor shall complete all work required under this Contract before the expiration of 147 days from the First Chargeable Day of the Contract. The First Chargeable Day of the Contract will be defined in the Notice to Begin Work issued by the District.

B. Work shall include the following milestones:

   1. Milestone 1: Completion of well construction work and parking lot restriping and resurfacing work.

   2. Milestone 2: Completion of all remaining Work.

C. Milestone Completion:

   1. The Contractor shall complete Milestone 1 before the expiration of 119 days from the First Chargeable Day of the Contract.

   2. The Contractor shall complete Milestone 2 before the expiration of 147 days from the First Chargeable Day.

D. See Article 11.07 for liquidated damage assessments.

E. See Article 17.02 – Hours of Work.

F. The District is not required to accept an earlier (advanced) schedule, i.e., one that shows early completion date(s) but within the Contract time as specified in these Specifications. Time(s) for completion of work shall adhere to the Contract time(s) specified in these Specifications unless earlier time(s) of completion are requested by Contractor and agreed to by the District. Any such agreement shall be formalized by a change order in accordance with Article 5.05.

11.05. Excusable Inclement Weather Delays

A. The time allowance for completion of work is based upon the inclusion of 7 days of excusable inclement weather.

B. Contractor’s attention is directed to Article 5.05.02—Extension of Time for Delay Due to Excusable Inclement Weather.

11.06. Schedule of Work

A. Except as provided for in these Specifications, the Contractor shall be responsible for scheduling the sequence of its work. Once work has begun, it shall proceed in a manner in accordance with the accepted schedule.

11.06.01. Preliminary Schedule of Work

A. Within 10 days of the first chargeable day of the Contract as specified in the Notice to Begin Work, the Contractor shall submit to the Engineer a Preliminary Schedule of Work. This schedule shall be a graphic bar diagram showing the planned contract work operations during the first 45 days of the Contract. See Article 11.07 for Liquidated Damages.

11.06.02. Detailed Schedule of Work

A. Within 21 days of the first chargeable day of the Contract as specified the Notice to Begin Work, the Contractor shall submit a Detailed Schedule of Work. The submittal shall be in hard copy and electronic format.

B. CPM Schedule

1. The Detailed Schedule of Work shall be a Critical Path Method (CPM) schedule which represents the planned order of significant activities to complete the work within the time allowed under this Contract. The CPM schedule shall be presented in sufficient detail such that sequence and interdependence of activities of the Project can be identified.

2. The schedule shall account for on site and offsite activities such as, but not limited to:

   - Construction and other executable tasks;
   - Testing, training and start-up activities;
   - Design, procurement, fabrication, inspection and delivery of materials and long lead time equipment;
   - Submission, review, resubmittal and approval of contract submittals;
   - Reviews by regulatory agencies and other third parties of the work;
   - Construction and sequencing constraints as specified in these Specifications;
   - District managed activities such as District furnished equipment which can affect project schedule;
   - Removal or relocation of interfering utilities by third parties;

3. The schedule shall be a fully legible, calendar time scaled, network diagram in the form of Activities on the Arrow Diagram Method (ADM) or

Precedence Diagram Method (PDM). Activities for each designated portion of the work shall be identified by separate subnetworks interconnected with the basic network diagrams. The network diagram shall show task relationship lines and be drawn for the early start of all activities.

4. The activities shall describe, in detail what is to be accomplished and where, the number of working days allocated for the activity, and identify the resources to be used. A legend and code may be used to show that an activity is to be performed in whole or part by a subcontractor.

5. The following information shall be furnished as a minimum for each activity:

   a. Preceding and succeeding activities
   b. Activity description
   c. Estimated duration of activity
   d. Earliest start date (by calendar date)
   e. Earliest finish date (by calendar date)
   f. Actual finish date (by calendar date)
   g. Slack or float
   h. Percentage of activity completed
   i. Activity constraints
   j. Dollar value of each activity if cost loaded schedule is required

6. Activities making up the critical path for the entire Contract and the critical path for each specific designated portion of the work shall be identified. The network diagram shall be organized to indicate a continuous flow of progress of activities from left to right.

7. Except for concrete curing, submittal review, equipment fabrication and deliveries, activities shall be no longer than 20 working days. Activities longer than 20 working days shall be subdivided into sub-elements of work.

8. Along with the network diagram, the Contractor shall submit a tabular listing of the schedule.

9. When required in accordance with Article 20.02—Progress Payment and Schedule of Values, the Schedule of Work shall be fully construction cost loaded. Work activities other than third party activities and District managed activities shall be cost loaded. The task breakdown of the Schedule of Work shall coincide with the Schedule of Values.

10. The Engineer’s favorable review and acceptance of the schedule shall not relieve the Contractor for errors and omissions in tasks, durations, or logic.

C. Progress Schedule (Adjustment to Schedule, Schedule Updates and Recovery Schedule)

1. If the Contractor desires to make a change to the CPM schedule after commencing construction, a revised CPM schedule shall be submitted to the Engineer at least 15 days prior to any such change in the project work.

2. The Contractor shall submit a schedule update to the Engineer before the fifth day of each month. The schedule update shall incorporate all current information, including progress, approved adjustments of time duration, and proposed changes in sequence or logic. The updated schedule shall state the percentage of work completed as of the last date of the previous month. The Contractor shall also submit a narrative report which shall include a description of problem areas, current and anticipated delaying factors and their impact, and explanation of corrective actions taken or proposed. Progress status shall be evaluated on the basis of float on the critical path at the time of updating, with negative float indicating the Project is behind schedule and positive float indicating status ahead of schedule. Reference is made to Article 11.07 for Liquidated Damages for failure to update the CPM schedule.

3. At any time that construction progress lags behind the original or current CPM schedule by either 20 working days or by five percent of the remaining time to complete the Contract, whichever is less, the Contractor shall prepare and submit a recovery schedule to the Engineer. This recovery schedule shall demonstrate how construction will be expedited and executed to achieve the contractual completion dates.

D. Time Impact Analysis

1. If the Contractor foresees that an ordered change or District delay will impact a controlling item of work or work progress, a written request for adjustment of time and supporting data shall be submitted to the Engineer promptly in accordance with Section 5.05.01. The supporting data shall include a schedule analysis and updated CPM schedule substantiating the Contractor’s request.

2. The CPM schedule shall document all ordered changes or District delays as separate activities or groups of activities. These activities shall be entered into the relevant part of the approved schedule at the time the ordered change or District delay occurred. In case of a deductive change reducing the quantity of work, the estimated duration for these activities shall be adjusted to reflect the reduction.

3. The Contractor shall submit a written report describing the ordered change or District delay; status of construction at the time of the

occurrence; activities affected by the occurrence; and the impact of the event time computation on all affected activities.

4. Only changes or delays that affect or create controlling items of work as defined by the schedule will result in time adjustments. The Engineer will determine if a request for time extension is warranted.

5. Total float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date of any activity in the schedule. Total float or slack is not time for the exclusive use or benefit of either the District or the Contractor. It is a resource available to the Project.

11.06.03. Payment

A. Full compensation for furnishing, updating and submitting project schedules and associated reports shall be considered as included in various Contract items of work and no additional compensation will be provided. Liquidated Damages for failure to submit schedules and schedule updates within the time specified shall be assessed in accordance with this Contract.

11.07. Liquidated Damages

A. In accordance with Article 7.06, the District shall deduct, as liquidated damages from monies due the Contractor the following amounts:

1. $4,400 per day for failure to complete all work of Milestone #1 within the time limit allowed.

2. $1,000 per day for failure to complete all work of Milestone #2 within the time limit allowed.

3. $250 per day for failure to submit the Preliminary Schedule of Work, Detailed Schedule of Work, Schedule Updates, and Master Submittal List within the time limits allowed.

B. Contractor’s attention is directed to Article 13.10.07 regarding Liquidated Damage assessments for failure to submit O&M documents.

C. Liquidated damages shall be assessed separately and independently. Imposition of liquidated damages shall not preclude the District from taking other action as deemed appropriate to ensure performance of the Contract, and shall not relieve the Contractor of responsibility to comply with these Specifications.

11.08. Submittals and Withholding of Partial Payment

A. The Engineer retains the right to withhold partial payments in accordance with Article 8.03 of these Specifications until the Contractor has submitted the

Preliminary Schedule of Work, Detailed Schedule of Work, Schedule Updates and any other schedules and submittals as required by these Specifications.

11.09. Fines

A. The Contractor shall bear the cost of any penalties, fines, clean-up costs, or damages imposed on the District by the State or other regulatory agencies for violations caused by actions, or lack of action, of the Contractor. The District may deduct the amount thereof from any monies due, or that may become due, to the Contractor under this Contract.

11.10. Bonus – NOT USED

SECTION 12. GENERAL REQUIREMENTS

12.01. Abbreviations and Acronyms – NOT USED

12.02. Definition of Key Terms – NOT USED

12.03. Site Investigation

A. Contractor acknowledges that he has visited the site of the work, has fully informed himself as to existing conditions and limitations prior to the presentation of his bid, and agrees that there will be no increase in the contract price or time for any additional work done or material or equipment furnished, the need for which would have been disclosed by a reasonable inspection**.**

12.04. District-Furnished Reports

12.04.01. Geotechnical Reports

A. The Contractor is notified that logs of soil borings for other projects/work in the vicinity of the Project site are available for review on the District's website (http://www.valleywater.org/Programs/Construction.aspx). The Contractor is advised that these documents are for the Contractor's information only. Reference is made to Article 3.02.

B. The Contractor shall be responsible for reviewing the information and for evaluating the need for, and for providing for, any additional investigations it deems necessary. Any such investigations shall be considered incidental to the work and no additional payment will be made therefore.

12.04.02. Environmental Report – NOT USED

12.04.03. Hazardous Materials Investigation Report – NOT USED

12.04.04. Archeological Findings Report – NOT USED

12.04.05. As-Built Drawings – NOT USED

12.05. Contractor's Engineering and Design

A. The Contractor shall provide engineering and design of the following work components:

1. Sound wall

B. See Technical Provisions for additional information.

12.05.01. Seismic Design Criteria

A. See Technical Provisions for additional information.

12.05.02. Wind Design Criteria

A. See Technical Provisions for additional information.

12.05.03. Hydraulic Design Criteria – NOT USED

12.05.04. Truck Loading – NOT USED

SECTION 13. SPECIAL REQUIREMENTS

13.01. Engineer

A. The Designated Engineer of the District shall be the District's representative who assumes all duties and responsibility and has all rights and authority as assigned in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

B. The Designated Engineer of the District is the Deputy Operating Officer of the Water Utility Capital Division.

13.02. Project Signs

A. Contractor shall install and maintain District-furnished project identification signs at the locations shown on the Drawings and in accordance with the notes and details thereon and as specified in these Specifications.

B. The signs shall be clearly visible to the public. All hardware, posts, and fasteners required to secure the signs to the sound wall shall be furnished and installed by the Contractor.

C. The signs will be available to the Contractor at a location to be determined by the Engineer. Arrangements to pick up the signs shall be made by the Contractor at least 2 working days in advance of the date when the signs are to be picked up.

D. The Contractor shall be responsible for the transportation of the signs to the jobsite and to ascertain all information, dimensions, connections, and appurtenances required to provide satisfactory installation of the signs.

E. Sign Installation:

   1. Project signs furnished by the District will be approximately 4 feet wide and up to 8 feet high.

   2. Contractor is responsible for installing signs to the sound wall at locations directed by the Engineer.

F. The signs shall be installed prior to the start of construction and shall be maintained throughout the construction of the Project. Maintain signs and supports in a neat, clean condition; repair damages to structures, framings or signs until Project Completion. Remove or paint over graffiti and repair signs. Straighten signs whenever they are not plumb.

G. Upon completion and acceptance of the Project by the District, the Contractor shall remove the signs and framing and return them to the District warehouse at 5905 Winfield Blvd., San Jose, CA 95123. Arrangement to return the signs shall be made by contacting Winfield Warehouse at (408) 265-2607, extension 3800, at least 2 working days in advance of the date when the signs are to be returned.

13.02.01. Payment

A. Full compensation for doing all work necessary to pick up and install the District-furnished signs shall be included in the lump sum price bid for MOBILIZATION.

13.03. Office Facilities – NOT USED

13.03.01. Engineer’s Office

A. Office facilities for the Engineer will not be required for this Project.

13.03.02. Contractor’s Office

A. Office facilities for the Contractor are not required for this Project.

13.03.03. Removal and Disposal

A. The office facilities, furnishing, and/or equipment specified in this Article 13.03 shall be furnished, installed and in operating conditions prior to performing any other contract work under the Contract and shall be removed and disposed of as required to comply with the provisions of the Contract.

13.03.04. Payment

A. Full compensation for doing all work necessary to provide office facilities including operating and maintenance costs as specified herein shall be included in the lump sum price bid for MOBILIZATION.

13.04. Use of District Facilities – NOT USED

13.05. Temporary Utilities

A. Temporary Electrical Power: All electrical power for the Contractor’s construction operations, offices, storage spaces, lighting, testing, heating, cooling, ventilating, security, and to support the other temporary utilities and facilities described herein shall be provided and paid for by the Contractor. The Contractor shall arrange, at no additional cost to the District, with the local electrical utility to provide and remove adequate temporary electrical service and/or provide temporary electrical generator. The location of the temporary electrical service equipment will be subject to the approval of the Engineer.

B. Temporary Lighting: Provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by California OSHA standards. Shield and direct all temporary exterior lighting downward and toward the interior of the work area to minimize its effects on the neighbors.

C. Temporary Heating, Cooling, and Ventilation: Provide means for heating, cooling, and ventilating all work areas as may be required to protect the work from damage by low or high temperatures, weather, or to provide a safe environment for workers.

D. Temporary Water: (a) Pay for and construct facilities necessary to furnish potable water for human consumption and non-portable water for use during construction, (b) Provide backflow prevention devices properly sized for use on the metered potable water connection, (c) Post ample signs throughout the work area warning of the usage of non-portable water if non-portable water is being used.

E. Temporary Sanitary Facilities: Sanitary facilities for the Contractor and all subcontractors shall be provided by the Contractor. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view wherever possible. At least one toilet shall be provided for each 20 workers.

F. Solid and Liquid Waste Disposal: Provide a sufficient number of waste receptacles, dumpsters, and bins to contain all solid and liquid waste generated from construction operations. Waste receptacles shall be emptied a minimum of weekly, and more frequently when full. Contractor's attention is also directed to Article 18.06. Solid Materials Management.

G. Temporary Fire Protection: Provide portable UL-rated, 20 pound, Class A fire extinguishers at temporary Contractor's, Engineer's, and similar office spaces. In all other areas of construction operations, provide UL-rated, 20 pound or larger, Class ABC dry chemical extinguishers or a combination of NFPA recommended classes for the exposure. Comply with NFPA 10 and 241 for classification, extinguishing agent, and size required by location and class of fire exposure. Comply with the Uniform Fire Code and Cal/OSHA regulations for the number of fire extinguishers.

13.05.01. Payment

A. Full compensation for doing all work necessary to provide temporary utilities shall be included in the contract price for various items of work involved and no separate payment will be made therefore.

13.06. Staging Area

A. Contractor staging areas shall be as shown on the Drawings.

B. Staging areas that are not already paved or covered with compacted aggregate base, and that are used for parking vehicles, trailers, workshops, maintenance areas, or equipment, piping, formwork, rebar, storing masonry on pallets, and metal product storage, shall be graded as required, and surfaced with a minimum of 3 inches of compacted aggregate base rock over a high modulus, woven, and soil separation geo-textile. Areas storing aggregate base or other rock products shall also be placed on this same geo-textile. The objective is to maintain separation between native and construction materials. Areas storing soils and sand are not required to be surfaced with aggregate base course.

B. Aggregate base shall be removed from all staging areas prior to project completion and the surfaces shall be re-graded to their original grades or matching surrounding conditions as directed by the Engineer.

C. Any soils contaminated with petroleum product or other hazardous materials by the Contractor shall be removed by the Contractor and disposed of in accordance with local, state, and federal laws.

D. Contractor is responsible for weed control in staging areas and material storage areas.

13.06.01. Payment

A. Full compensation for doing all work necessary to provide staging areas shall be included in the contract price for various items of work involved and no separate payment will be made therefor.

13.07. District Furnished Materials and Equipment

A. The District will furnish the following materials to the Contractor. The Contractor shall install the District-furnished materials at the locations shown on the Drawings.

   1. Project signs

B. The Contractor’s attention is directed to Article 13.02 regarding arrangements for pick up of the project signs.

C. The Contractor shall be responsible for the transportation of District-furnished materials to the jobsite and to ascertain all information, dimensions, connections, and appurtenances required to provide for satisfactory installation of all District-furnished materials.

13.07.01. Assignment of Contract for District-Procured Materials – NOT USED

13.08. Salvaged Materials and Equipment – NOT USED

13.09. Tools and Spare Parts – NOT USED

13.10. Operation and Maintenance Documents – NOT USED

13.11. Maintenance of Record Documents

A. The Contractor shall maintain at the site the following record documents:

1. Record Drawings (full size).
2. Specifications and addenda.
3. Favorably reviewed submittals including shop drawings, product data, samples, calculations, and other submittals.
4. Change orders, field orders, and other contract modifications.
5. Field and shop testing records.
6. Survey records.
7. Correspondence.

B. The Contractor shall store the record documents in an approved project site location apart from documents used for construction. Record documents are not to be used for construction purposes. The Contractor shall provide files and racks for orderly storage of the documents; maintain the documents in clean, dry, legible condition, and make all documents and samples available during regular business hours for inspection and reproduction by the Engineer.

C. The Contractor shall keep the record documents current with construction in progress. Completed construction work shall not be permanently concealed until required information has been recorded.

D. The Contractor shall label each record document except correspondence “PROJECT RECORD” in neat, large, printed letters.

E. The Contractor shall legibly mark specifications in red pencil or ink to record applicable changes as described in paragraph A.

F. At completion of construction, and prior to the final acceptance of the Project by the District, the Contractor shall deliver the Record Documents to the Engineer in accordance with Article 21.05.01.

13.11.01. Record Drawings (Marked-Up Drawings)

A. The Contractor is required to keep an accurately marked, up-to-date set of drawings for the work installed. Contractor shall record, as the work progresses, changes to the original Contract Drawings including, but not limited to, the following items:

1. Field changes or adjustments in the final location or in the final dimensions or details of the Work.

2. Changes resulting from requests for information, change orders, and other contract modifications.

3. Locations of underground and above ground utilities and appurtenances.

4. Details not included in the original Contract Drawings but incorporated into the Work, referenced to approved shop drawings, product data, samples, calculations, or other submittals.

5. Location of items embedded or concealed from view such as conduits, cables, junction boxes, piping, etc.

B. Changed work or conditions of the work covered up or concealed by the Contractor in advance of recordation of the Record Drawings shall be uncovered to allow accurate recordation of the change, then re-covered, all at the Contractor’s expense.

C. Changes shall be marked directly on the Contract Drawings in accordance with instructions provided in Appendix C. If there is insufficient space on a Drawing to mark up the change, the Contractor shall draw additional sketches to completely show the change and attach the sketches to the Drawing.

D. The Engineer has the right to review the Contractor’s marked-up drawings at any time to ascertain that they are being kept up to date and show sufficient detail. Should the Contractor’s marked-up drawings not be up to date or lack necessary detail, the Engineer may withhold 5 percent from each monthly progress payment, until the drawings are deemed acceptable by the Engineer. Such review by the Engineer shall not relieve the Contractor of its responsibility for keeping the Record Drawings current and complete.

E. The Record Drawings shall be stamped “AS-BUILT” and shall be, at completion of construction, signed and dated by the Contractor.

13.12. Emergency Work – NOT USED

13.13. Dispute Review Board – NOT USED

13.14. Escrow Bid Documents – NOT USED

13.15. Partnering – NOT USED

13.16. Insurance

A. Without limiting the Contractor's indemnification of, or liability to, the District, the Contractor must provide and maintain at its own expense, during the term of this

Contract, or as may be further required herein, the following insurance coverages and provisions:

1. Contractor must provide its insurance broker(s)/agent(s) with a copy of these requirements and warrants that these requirements have been reviewed by Contractor’s insurance agent(s) and/or broker(s), who have been instructed by Contractor to procure the insurance coverage required herein.

2. In addition to certificates, Contractor must furnish District with copies of original endorsements affecting coverage required herein. The certificates and endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All endorsements and certificates are to be received and approved by District before the Contract commences. In the event of a claim or dispute, District has the right to require Contractor's insurer to provide complete, certified copies of all required pertinent insurance policies, including endorsements affecting the coverages required herein.

B. Contractor must, at its sole cost and expense, procure and maintain during the entire period of this Contract the following insurance coverage(s).

13.16.01. Required Coverages

A. Commercial General/Business Liability Insurance with coverage as indicated:

1. **$2,000,000** per occurrence / **$2,000,000** aggregate limits for bodily injury and property damage

2. **$2,000,000** Products/Completed Operations aggregate (to be maintained for at least three (3) years following acceptance of the work by District)

3. General Liability insurance must include:

    a. Coverage at least as broad as found in standard ISO Form CG 00 01.

    b. Contractual Liability expressly including liability assumed under this contract.

    c. If Consultant will be working within fifty (50) feet of a railroad or light rail operation, any exclusion as to performance of operations within the vicinity of any railroad bridge, trestle, track, roadbed, tunnel, overpass, underpass, or crossway must be deleted, or a railroad protective policy in the above amounts provided.

    d. Severability of Interest

   e. Broad Form Property Damage liability

   f. If the standard ISO Form wording for "OTHER INSURANCE," or other comparable wording, is not contained in Consultant's liability insurance policy, an endorsement must be provided that said insurance will be primary insurance and any insurance or self-insurance maintained by District, its Directors, officers, employees, agents or volunteers will be in excess of Consultant's insurance and will not contribute to it.

B. Business Auto Liability Insurance with coverage as indicated:

   1. **$2,000,000** combined single limit for bodily injury and property damage per occurrence, covering all owned, non-owned and hired vehicles.

C. Workers' Compensation and Employer's Liability Insurance

   1. Statutory California Workers' Compensation coverage covering all work to be performed for the District.

   2. Employer Liability coverage for not less than **$1,000,000** per occurrence.

E. Surety Bonds

   1. Contractor shall provide the following Surety Bonds:

      a. A bid bond as specified in the Notice to Bidders.
      b. A performance bond as specified in Article 4.03.
      c. A payment bond as specified in Article 4.03.

13.16.02. General Requirements

A. Additional Insured Endorsement(s)**:** Contractor must provide an additional insured endorsement for Commercial General/Business Liability and Business Automobile liability coverage naming the Santa Clara Valley Water District, its Directors, officers, employees, and agents, individually and collectively**,** as additional insureds, and must provide coverage for acts, omissions, etc. arising out of the named insureds' activities and work. The following shall also be added to the additional insured endorsement:

   1. City of Campbell

   (**NOTE:** Additional insured language on the Certificate of Insurance is **NOT** acceptable without a separate endorsement such as Form CG 20 10, CG 2033, CG 2037. Note: Editions dated 07/04 are not acceptable)

B. Primacy Clause: Contractor's insurance must be primary with respect to any other insurance that may be carried by the District, its officer, agents and employees, and the District's coverage must not be called upon to contribute or share in the loss.

C. Cancellation Clause Revision: The Certificate of Insurance must provide 30 days notice of cancellation, (10 days notice for non-payment of premium). **NOTE**: The standard wording in the ISO Certificate of Insurance is not acceptable. The following words must be crossed out or deleted from the standard cancellation clause: ". . . endeavor to . . ." AND ". . . but failure to mail such notice must impose no obligation or liability of any kind upon the company, its agents or representatives."

D. Acceptability of Insurers: All coverages must be issued by companies admitted to conduct business in the State of California, which hold a current policy holder's alphabetic and financial size category rating of not less than A- V, according to the current Best's Key Rating Guide or a company of equal financial stability that is approved by the District's Risk Management Administrator.

E. Self-Insured Retentions or Deductibles: Any deductibles or self-insured retentions must be declared to and approved by the District. At the option of the District, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the District, its officers, officials, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the Entity guaranteeing payment of losses and related investigations, claim administration, and defense expenses.

F. Subcontractors: The Contractor must require each of its subcontractors of any tier to carry the aforementioned coverages, or Contractors may insure subcontractors under its own policies.

G. Amount of Liability not Limited to Amount of Insurance: The insurance procured by Contractor for the benefit of the District must not be deemed to release or limit any liability of Contractor. Damages recoverable by the District for any liability of Contractor must, in any event, not be limited by the amount of the required insurance coverage.

H. Coverage to be Occurrence Based: All coverage must be occurrence-based coverage. Claims-made coverage is not allowed.

I. Waiver of Subrogation: Contractor agrees on to waive subrogation against the District to the extent any loss suffered by Contractor is covered by any Commercial General Liability policy, Automobile policy, Workers' Compensation policy, or Builders' Risk policy described in Article 13.16.01 - Required Coverages above. Contractor agrees to advise its broker/agent/insurer about this provision and obtain any endorsements, if needed, necessary to ensure the insurer agrees.

J. Non-compliance: The District reserves the right to withhold payments to the Contractor in the event of material noncompliance with the insurance requirements outlined above.

K. The Contractor shall mail or deliver the certificates and endorsements to:

Capital Program Planning & Analysis
Unit Manager
Santa Clara Valley Water District

See District website (http://www.valleywater.org/ContactUs.aspx) for appropriate address to mail, express mail, or hand carry

L. The certificate of insurance must include the name of the project.

M. For any questions, the Contractor’s insurance broker is advised to call Mr. David Cahen, District Risk Management Administrator, at (408) 630-2213.

13.17. Web-Based Construction Document Management

13.17.01. Summary

A. The Contractor, and its subcontractors and suppliers shall utilize EADOC for submission of all data and documents throughout the duration of the Contract, unless specified otherwise in the Contract Documents. The term “Copy” or “Copies” shall refer to electronic copies unless a hard copy is specified. Where a hard copy is specified, both electronic and paper versions shall be submitted.

1. EADOC is a web-based construction management application hosted by EADOC LLC. EADOC is a registered trademark of EADOC LLC.

2. EADOC is paid for by the District.

3. EADOC will be made available to all Contractor's personnel, subcontractor personnel and suppliers working under the Contract.

4. EADOC will be made available to all Contractor's personnel, subcontractor personnel and suppliers working under the Contract.

5. EADOC shall be the primary means of project information submission and management.

B. Related Sections:

1. Article 9.02, Submittals to be Furnished by the Contractor
2. Article 19.01, Submittal Procedures

C. The Engineer will establish the Contractor's access to EADOC by allowing access and assigning user profiles to accepted Contractor personnel. User profiles will define levels of access into the system, and determine assigned function-based authorizations and user privileges to enter and access information in EADOC. Subcontractors and suppliers will be given access to EADOC by and through the Contractor. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers on EADOC shall be the responsibility of the Contractor.

D. Within five work days after receiving the Notice to Begin Work, the Contractor shall submit:

1. List of Contractor's personnel responsible for EADOC administration, as well as that for the Contractor's subcontractors and suppliers.

2. Include descriptions of key personnel's roles and responsibilities for this project. Contractor shall also identify its organization's administrator on the list.

E. Data entered in a collaborative mode (entered with the intent to share as determined by permissions and workflows within the EADOC system) by the Engineer and the Contractor will be jointly owned.

F. The Contractor is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. The District's acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.

13.17.02. Computer and Connectivity Requirements

A. The Contractor shall use computer hardware and software that meets the requirements of EADOC system as recommended by EADOC LLC and as described herein to access and utilize EADOC. As recommendations are modified by EADOC, the Contractor shall upgrade its system(s) to meet or exceed the recommendations. Upgrading of the Contractor's computer systems shall not be justification for a cost or time modification to the Contract.

B. The Contractor shall ensure that connectivity to the EADOC system is accomplished through DSL, cable, T-1 or wireless communications systems. The minimum bandwidth requirement for using the system is 128 kb/s. It is recommended that a faster connection be used when uploading pictures and files-into the system;

C. EADOC currently supports Mozilla's Firefox v3.0-3.6, Apple's Safari v3.0-5.0, and Microsoft’s Internet Explorer v7.0-8.0 web browsers for accessing the application.

D. EADOC is a web-based environment and therefore, subject to the inherent speed and connectivity limitations of the Internet. The Contractor is responsible for its own connectivity to the Internet. EADOC response time is dependent on the Contractor's equipment, including processor speed, Internet access speed, etc. and current traffic on the Internet. The District will not be liable for any delays associated from the usage of EADOC including, but not limited to: slow response time, down time periods, connectivity problems, or loss of information. The Contractor shall ensure connectivity to the EADOC system (whether at the home office or job site). Under no circumstances will usage of EADOC be grounds for a time extension or cost adjustment to the Contract.

13.17.03. Contractor Responsibility

A. Contractor shall be responsible for scanning or otherwise converting to electronic format all project submittals and Contractor correspondence, drawings, sketches, etc., and uploading them to the EADOC web site.

B. The Contractor shall be responsible for the validity of its information placed in EADOC.

C. Accepted users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, CAD drawing applications, and Portable Document Format (PDF) document distribution program.

D. The Contractor shall utilize the existing forms in EADOC to the maximum extent possible. If a required form does not exist in EADOC, the Contractor shall include a form of its own or one provided by the Engineer (if available) as an attachment to a submittal.

E. PDF documents shall be created through electronic conversion rather than optically scanned whenever possible. If optically scanned, the document shall be converted through an OCR (Optical Character Reader) so that all documents are searchable. If the documents have multiple sections then the Contractor shall provide a "bookmark" for each section. The Contractor is responsible for the training of its personnel in the use of EADOC (outside what is provided by the District) and the other programs indicated above as needed. The Contractor shall disable all security so that copying and pasting of information from the PDF document is enabled.

F. The Contractor shall provide a list of key EADOC personnel for the Engineer's acceptance. Contractor is responsible for informing the Engineer of additional personnel, subcontractors and suppliers to be added to the system, or of personnel, subcontractors and suppliers to be removed from the system. The Engineer reserves the right to perform a background check on all potential users.

13.17.04. Training

A. The District will provide training consisting of two web-based seminars in conjunction with a conference call. Additionally, one classroom training seminar may also be required. The training seminars are 2 hours each.

B. Contractor shall arrange and pay for the facilities and hardware/software required to facilitate the Contractor's own training.

13.17.05. EADOC Utilization

A. EADOC shall be utilized in connection with all document and information management required by these Contract Documents. Documents and information to be submitted electronically include, but are not limited to, the documents described below.

B. Submittals:

1. Submittals shall be in accordance with Article 9.02—Submittals to be Furnished by the Contractor and Article 19.01—Submittal Procedures.

2. In addition to electronic copies transmitted via EADOC, the Contractor shall provide one hard copy of each favorably reviewed submittal. Favorable Review consists of those submittals returned to the Contractor with action marked as “No Exceptions Noted,” “Make Corrections as Noted,” or “In Receipt Of.”

C. Administrative documents: All correspondence shall be submitted using EADOC. Examples include, but are not limited to:

1. Written correspondence (letters, memos, etc.)
2. Requests for Information (RFI)
3. Certified Payroll
4. Survey Requests
5. Compliance documentation (test reports, QA/QC reports, certifications)

D. Schedules:

1. All schedules and associated updates shall be submitted in accordance with Article 18.06—Schedule of Work.

2. All schedules and associated updates shall be submitted as specified in these Contract Documents and as a native backed-up file of the scheduling program being used. The schedule shall be posted as a PDF file in the format specified in these Contract Documents and as a backed-up file.

E. Operations and Maintenance Documents:

1. Operations and Maintenance Documents shall be submitted in accordance with Article 13.10—Operations and Maintenance Documents.

2. In addition to electronic copies transmitted via EADOC, the Contractor shall provide hard copies of each final favorably reviewed Operations and Maintenance submittal. The number of hard copies to be provided shall be as required in Article 13.10—Operations and Maintenance Documents.

F. Financial Documents:

1. Schedule of Values

2. Monthly Applications for Payment

3. Change Order Requests and Proposals

4. Change Order supporting documentation, including Daily Extra Work Reports

G. Requirements for Financial Documents shall be in accordance with Section 20-Payment Procedures. Supporting material for Financial Documents shall be submitted on EADOC utilizing both the EADOC Schedule of Costs format and as PDF attachments.

SECTION 14. GENERAL COORDINATION

14.01. Meeting Requirements

A. This Article includes requirements for scheduling, attending, and conducting project meetings for the purposes of addressing issues related to the work, and reviewing and coordinating progress of the work. Project meetings include the pre-construction meeting, progress meetings, coordination meetings, and special meetings as specified herein.

B. Qualifications of Meeting Participants—Representatives of firms and organizations participating in each meeting shall be qualified and authorized to act on the behalf of the firm or organization they represent.

14.01.01. Preconstruction Meeting

A. The purpose of the preconstruction meeting is to review the Project, to designate responsible personnel, and to inform the Contractor of the District's contract administrative procedures, correspondence communication protocol, and other special requirements of the Contract.

B. Upon or before issuance of Notice to Begin Work, the Engineer will arrange the preconstruction meeting. The Contractor will be notified of the time, date and place where the preconstruction meeting will be held. The Engineer will prepare the agenda, preside at the meeting, and record meeting minutes.

14.01.02. Progress Meetings

A. The Engineer will conduct progress meetings on a regular weekday and time as mutually agreed by the Contractor and the Engineer. The purpose of the progress meetings is to review construction progress, submittal status, change order status, construction safety issues and concerns, conflicts, public/neighborhood issues, progress payments, and any other subjects as deemed appropriate.

B. The Contractor shall allow for one meeting a week, one hour minimum for each meeting.

C. Subject to the Engineer's approval, the frequency of the progress meetings may be reduced at the beginning and end of the construction period.

D. Contractor's suppliers and subcontractors shall attend the meetings as required. Third parties such as agency representatives and utilities may be invited by the Engineer to attend as deemed appropriate.

E. The Engineer will record meeting minutes as needed, and will distribute the agenda and recorded minutes in advance of the meeting.

14.01.03. Coordination and Special Meetings

A. The Engineer will conduct other coordination and special meetings in addition to progress meetings when appropriate. The purpose of these meetings is to discuss and coordinate parking lot shutdowns, striping, and paving and any other special issues as deemed necessary.

B. Date, time, and location for coordination and special meetings will be as mutually agreed by the Engineer and the Contractor. The Contractor shall ensure attendance of appropriate Contractor staff, subcontractors, and suppliers.

D. The Engineer will record meeting minutes as needed, and will distribute the agenda and recorded minutes in advance of the meeting.

14.02. Integration and Coordination With District Operations – NOT USED

14.03. Coordination of Work Activities

14.03.01. Work by Others

A. The Contractor’s attention is directed to Section 7-1.14 of the State Specifications and Article 6.19 of these Specifications regarding cooperation. No additional payments will be made or claims considered for delay caused to this Contract because of conflicts with other construction.

B. The Contractor shall complete the following activities as requested by the Engineer to assist in the coordination of Contract work with work by others: attend planning meetings; review and comment on project documents relative to coordination aspects; schedule work to promote efficient installation of all improvements; move equipment, materials, or vehicles to allow work by others to proceed; and other reasonable activities.

14.03.02. Coordination With Others

A. The Contractor is advised that City of Campbell personnel will utilize the John D. Morgan Park parking lot. The Contractor shall maintain continuous access required by City of Campbell and shall fully cooperate with City of Campbell personnel so as to not hinder or interrupt the assigned task of said personnel.

14.04. Construction Survey – NOT USED

14.05. Public Notification

A. The Engineer is responsible for all written and oral communication with the public and neighbors. The Contractor shall provide the Engineer with the schedules of major construction operations three weeks in advance of their occurrence to allow the District time to notify the neighbors. The Contractor shall include in the submittals the major milestones, descriptions of the work activities, and the start and end date(s) of each activity.

B. The schedule submittals shall include, but not be limited to, the following activities:

1. Closure of parking lot for temporary restriping of parking lot and installation of sound wall.

2. Closure of parking lot for removal of sound wall, pavement resurfacing and final striping of parking lot.

C. The Engineer will provide the above schedules two weeks in advance to all property owners and tenants adjacent to the project site and to others potentially impacted by the construction activities. If for any reason, any construction activity is anticipated to be delayed for more than one week beyond the aforementioned schedule, the Contractor shall notify the Engineer immediately, submit the revised schedule, and explain the delay. The delay notice shall be given to the Engineer no later than one week prior to the performing the activity.

D. The Contractor shall provide notification to property owners and tenants adjacent to the project and park users a minimum of ten (10) calendar days in advance of any parking lot closures. Notification shall be by use of electronic warning signs. Contractor’s attention is directed to Section 22 Mobilization of the Specifications.

D. All payments for coordinating the work and providing submittals as specified shall be considered incidental and included in the other items of work and no additional compensation will be made thereof.

SECTION 15. WORK CONSTRAINTS AND SITE RESTRICTIONS

15.01. General Work Constraints

A. The Contractor shall take all precautionary measures as necessary to not cause any disruption of the use and operation of the John D. Morgan Park. The activities discussed below do not include all items affecting the operation of the plant, but are intended to describe certain actions that could disrupt the normal operation of the park:

1. Contractor removing from service, restricting, or impeding the function of any utility such as water, electrical, gas, sanitary sewer, storm drain, and lighting system.

B. Contractor shall not delay or deny access to any area needed by City of Campbell personnel to complete their work assignments.

15.02. Utilities

A. The Contractor's attention is directed to Article 6.14—Preservation of Property and Article 7.10—Coordination with Utilities.

B. Various existing utilities, both above and below ground, will be encountered during construction. The Contractor shall perform all work in such a manner as to avoid damage to existing utilities. The Contractor will be held responsible for any damage due to his/her failure to exercise due care.

C. The Contractor shall notify Underground Service Alert (U.S.A.) a minimum of 5 working days prior to start of excavation or demolition.

D. The Contractor shall complete a utility detection survey using scanning equipment appropriate for detecting utilities of all materials (i.e., plastic, metal, concrete, etc.) for any area where excavation and/or drilling will occur. Any utility detected shall be field marked.

E. The Contractor shall verify the exact location of all indicated or field marked utilities and make a sufficient number of exploratory excavations of all utilities that may interfere with the work sufficiently in advance of the construction. Contractor shall perform exploratory excavations in the presence of the owner of the utility to be explored. Contractor shall promptly notify the Engineer when such exploratory excavations show the utility location as shown on the Drawings to be in error.

F. The Contractor shall not interrupt the service function or disturb the support of any utility without authority from the utility owner or order from the Engineer. All valves, switches, vaults, and meters shall be maintained and be readily accessible for emergency shutoff.

15.02.01. Utility Coordination

A. The owners of utilities or their authorized agents reserve the right to enter upon the right of way at all times for the purpose of operations and maintenance of their facilities or for making necessary connections or repairs to their properties. The Contractor shall cooperate with the affected utilities engaged in such work to avoid any unnecessary delay or hindrance to such work.

B. The telephone numbers of owners of known utilities that may be encountered are:

City of Campbell	(408) 866-2150

C. Contractor shall be responsible for the coordination of work near utilities and the protection of the utility during construction. Where it is known or anticipated that an existing utility will be encountered during construction, the Contractor shall be responsible for notifying and/or supplying appropriate Drawings to the affected utility's owner at least 5 working days in advance of work in which the utility will be involved.

15.02.02. Protection of Existing Utilities

A. The Contractor is responsible for doing all work and furnishing all materials required for protecting in place or restoring all existing above and below ground utilities disturbed or damaged during construction to a condition equal to or better than that existing prior to construction. Payment for complying with this provision shall be considered as included in the price paid for other items of work and no additional compensation will be made.

B. The Contractor shall protect all utilities which may be impacted by the work. All exposed utilities shall be supported firmly and uniformly, conforming to the utility requirements. No utilities shall be left exposed for a period exceeding 8 hours unless approved by the utility and the Engineer. Unless otherwise shown on the Drawings, all utilities shall be backfilled with at least 12 inches of select backfill around the utility.

C. All utility pole and guy anchors shall be protected and, where the walls of the trench are within 5 feet of a pole or anchor, lateral support to the pole shall be provided at the Contractor's expense.

D. The Contractor shall immediately notify the utility owner and the Engineer if any existing utilities which have sustained damage prior to excavation, or if the Contractor disturbs or damages the existing utility during the excavation. The Contractor shall bear the cost of repair or replacement of any utility damaged as a result of construction operation.

E. In no case shall any service (gas, water, electricity, telephone, etc.) be interrupted.

15.02.03. Utility Installation/Relocation by Others – NOT USED

15.03. Protection of Existing Improvements

A. The Contractor’s attention is directed to Article 6.14—Preservation of Property.

15.03.01. Survey Monuments

A. No survey monuments, permanent markers for the District right of way, or District survey control points shall be removed or disturbed until the Engineer has recorded the locations thereof, and a permit for such removal has been received from the agency having jurisdiction. When the construction work has been completed, the Contractor shall replace said monuments accurately in the locations as referenced by the Engineer at no cost to the District.

B. Installation of the survey monuments shall be in accordance with the requirements of the agency having jurisdiction.

C. If any marker or monument is destroyed by the Contractor and the marker or monument has not been referenced by the Engineer, the Contractor shall be responsible for the accurate replacement of said marker or monument at no expense to the District by a Land Surveyor licensed by the State of California in accordance with the California Business and Professions Code Section 8771.

15.04. Pre-Construction Surveys

15.04.01. Pre-Construction Survey Within the Project Limits

A. After the Contract has been awarded, and before commencement of work, the Contractor shall conduct a thorough examination of the work areas within the project limits in the presence of the Engineer.

B. The Contractor shall inspect the condition of all areas which may have potential impacts, including but not limited to, existing improvements, curbs, driveways, ramps, landscape planting, light poles, fences, and any other conditions deemed appropriate. The presence of the Engineer shall in no way relieve the Contractor of the responsibility for completely and accurately documenting all existing conditions.

C. Records of all observations shall be prepared by the Contractor, and every copy of all documents shall be signed by the authorized representative of the Contractor, and provided to the Engineer. Photographs and video tapes with dates, as deemed appropriate by the Engineer, shall be made by the Contractor and be included in the record of observations. One signed copy of every document, photographs, and video tape will be kept on file in the office of the Engineer.

D. The above records, photographs, and video tapes are intended for use as evidence in ascertaining the extent of any damage which may occur as a result of the Contractor's operations during the prosecution of the Contract work.

E. Structural surveys, if required, shall be conducted by a licensed civil or structural engineer.

15.04.02. Surveys of Properties in the Vicinity of the Work – NOT USED

15.05. Rights of Way

A. Work will be located in rights of way in the City of Campbell. In the performance of the work within the City of Campbell, the Contractor shall comply with the ordinances, regulations, and all other requirements of the authorities governing work in City of Campbell public streets and rights of way.

B. The Contractor shall obtain an encroachment permit from the City of Campbell. The encroachment permit will provide for construction of Project work in the John D. Morgan Park parking lot. See Article 17.01.02.B.

15.05.01. District-Furnished Right of Way

A. The District has provided all rights of way as shown on the Drawings. The Contractor has full use of this right of way except for the limitations specified in these Specifications and as noted on the Drawings.

B. Trees, landscaping, and all existing vegetation and irrigation systems shall be fully protected from injury or damage at the Contractor's expense. Refer to Article 6.14 Preservation of Property.

15.05.02. Contractor-Furnished Right of Way

A. Any additional rights of way desired by the Contractor for his/her convenience shall be acquired by the Contractor at no expense or obligation to the District. The Contractor shall provide the Engineer with copies of any agreements between the Contractor and property owners regarding disposal of excess materials generated by the Contractor's activities, storage of materials, or any use of property in conjunction with this Project. The agreement shall state that the agreement is solely between the Contractor and the property owner and that the District is not a party to the agreement and not responsible for compliance with any conditions stated in the agreement.

15.05.03. Temporary Construction Easement (TCE's) – NOT USED

15.06. Access to Properties Owned by Others

A. The Contractor shall conduct the construction operations in a manner that will cause as little inconvenience as possible to adjacent property owners.

B. Convenient access to driveways, houses, buildings, and businesses along the work shall be maintained in operational condition and temporary approaches to crossings or intersecting streets shall be provided and kept in good condition.

C. When construction operation is directly within the driveway area, provide temporary access. The existing access shall not be closed until the temporary replacement access is usable. Once construction is completed, restore access to a condition equal to or better than the existing condition prior to the Contractor's operation.

D. Per California Vehicle Code Section 22500, stopping, parking, or leaving standing any vehicle in front of public or private driveway is not allowed.

15.07. Access to Job Site

A. The project location is shown on a map included in the Drawings. The Contractor may use the existing roads to access and perform the work subject to the restrictions specified herein.

B. It shall be the Contractor's responsibility to obtain any and all permits that may be required from the State, City, or County to move materials and equipment to the jobsite, dispose of excess material created by the Contractor's operation and for traffic control to, from, and on the project sites.

15.08. Access Roads Within Job Site

A. The Contractor shall maintain access road to all staging and work areas, office trailer, and other areas to which frequent access is required. Maintain access to all other existing facilities on the site, including access for delivery of materials and for maintenance and operation.

B. Where temporary roads cross buried utilities that might be injured by the loads likely to be imposed, such utilities shall be adequately protected so that no loads shall discharge on such buried utilities.

C. Maintain on-site access roads free of mud. Under no circumstance shall vehicles leaving the site track mud or dirt off the site onto public right-of-way.

D. The Contractor will be performing work at an operational park. Unless otherwise specified, the Contractor shall schedule and perform his/her work such that there is no disruption to park and parking lot operations and access.

15.09. District and City Use of Facilities/Premises Within the Work Area

A. The District and City of Campbell reserve the right to access and use the John D. Morgan Park during performance of the work.

B. The Contractor shall coordinate all construction operations with the Engineer and City of Campbell to avoid conflict and to facilitate City’s use of the premises.

C. The Contractor shall maintain the premises in pre-existing condition, and shall repair immediately any damages to the premises caused by Contractor’s operations.

SECTION 16. SAFETY AND SECURITY

16.01. Safety

A. The Contractor is hereby informed that work on this Project could be hazardous. The Contractor shall instruct all personnel working in potentially hazardous work areas of the potential dangers and shall provide such safety equipment and instruction as is necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to work around high-voltage wires, high-pressure gas mains, high-pressure water pipelines, and other utilities. Temporary supports, as required by the utility company, shall be provided by the Contractor to protect utility facilities.

B. All work and materials shall be in strict accordance with all applicable City, County and State Rules, Ordinances, Regulations, and Codes. The Contractor shall comply with CAL-OSHA Labor Code Section 6300 et seq. and with Chapter 4 of Title 8 of the California Administrative Code. Nothing in these Specifications shall be construed to permit work not conforming to governing codes. When Contract Documents differ from governing codes, the Contractor shall furnish and install the higher standards called for without extra charge.

C. Prior to start of work, the Contractor shall submit an Injury and Illness Prevention Program in accordance with CAL-OSHA requirements, Title 8, CCR Section 1509 (Construction). In addition, the Injury Illness Prevention Program shall comply with Title 8, CCR Section 3203 (General Industry) and/or Section 8406 (Tunnel) as deemed necessary. A copy of the program shall be available at all times in the Contractor's jobsite trailer. The Contractor shall designate a safety officer who will monitor and enforce the Injury and Illness Prevention Program.

D. For projects involving hazardous waste operations, the Contractor shall develop and implement a written Safety and Health Program and a site-specific Safety and Health Plan, and designate a Site Safety and Health Supervisor who has the responsibility and authority to develop and implement the site-specific safety and health plan and verify compliance, in accordance with Title 8 CCR Section 5192.

E. At all times the Contractor shall provide sufficient measures, such as, but not limited to: barricades, railings, lights, fences, and any other warning devices, to reasonably and prudently provide for the greatest public safety and convenience.

F. The Contractor is referred to Article 5.14 regarding excavation safety plans.

G. The services of the Engineer in conducting construction review of the Contractor's performance are not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing or scaffolding, or safety measures, in, on, or near the construction site.

H. The Contractor shall erect temporary fences or barriers and install warning signs around any unattended excavations and any excavations left open outside the working hours.

16.01.01. Temporary Facilities

A. Warning Devices and Barricades: Identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers per CAL-OSHA requirements, the latest version of the California Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and State agency permit conditions.

B. Barricades: Place barriers at ends of excavations and along excavations to warn pedestrian and vehicle traffic of excavations. Provide barriers with flashing lights after dark. Keep barriers in place until excavations are entirely backfilled and fully compacted. Barricade excavations to prevent persons from entering excavation areas in streets, roadways, parking lots, or other public or private areas associated with the Project.

C. Fences: Enclose site of the work with fence adequate to protect the work as necessary against acts of theft, violence, and vandalism. When entire or part of site is to be permanently fenced, permanent fence may be built to serve for both permanent and temporary protection of the work site, provided that damaged or defaced fencing is replaced prior to final acceptance.

16.02. Safety and Health Program – NOT USED

16.03. Security Requirements at Job Site

A. Contractor shall make adequate provision for the protection of the work area against fire, weather, theft, vandalism, and for the protection of the public against exposure to injury. All costs arising from theft, fire, or vandalism of the construction materials and equipment shall be borne by the Contractor.

B. During night hours, weekends, holidays, and other times when no work is performed at site, Contractor shall provide temporary closures or enlist services of security guards to protect temporary openings.

C. The Contractor shall not allow his/her staff to stay at the project site outside of normal hours or authorized work hours.

16.03.01. General

A. The Contractor shall comply with the security requirements specified herein during the entire construction duration. These requirements are not to be construed to relieve the Contractor of his/her responsibility for the work as specified in Article 6.15 of these Specifications.

B. Contractor's personnel includes the Contractor's own staff including, but not limited to, all tiers of subcontractor's staff, manufacturer's representatives, technicians, delivery drivers, etc.

16.03.02. Identification and Badging – NOT USED

16.03.03. Background Checks

A. The District reserves the right to request and receive such information as allowed by law and as required to complete a background check on any Contractor's personnel that must enter the site.

B. The District reserves the right to deny access to the site to any person as allowed by law.

16.03.04. Site Access Control – NOT USED

16.03.05. Mail and Postal Deliveries to the Project Site – NOT USED

16.03.06. Productivity Lost for Non-Compliance with Security Measures

A. Costs and delays incurred by the Contractor due to security measures shall not be cause for additional Contract time or additional compensation for the Contractor.

B. Failure to comply with these security measures may lead to delay or stop of work with no additional Contract time or additional compensation granted to the Contractor.

16.04. Payment

A. Full compensation, for doing all work and furnishing all materials required to comply with site safety and security requirements, as specified in these Specifications, shall be considered incidental and included in the other items of work and no additional compensation will be made therefor.

SECTION 17. PERMITS AND REGULATIONS

17.01. Permits and Agreements

17.01.01. District Obtained Permits

A. The District is in the process of obtaining a permit for work on this Project from the following agency having jurisdiction:

- Well Construction Permits

17.01.02. Contractor Obtained Permits

A. Unless noted otherwise, the Contractor shall obtain all permits required to complete the Work.

B. Contractor shall obtain an encroachment permit from the City of Campbell. The District has initiated the encroachment permit review process with the City of Campbell and has incorporated City's review comments in the Contract Documents. The Contractor shall sign for and pay the encroachment permit fee of $20,000. The Contractor shall comply with all requirements of the City's encroachment permit, including but not limited to general permit conditions and insurance requirements. These requirements can be found on the City's website at: http://www.ci.campbell.ca.us/187/Permit-Information.

17.01.03. Operation Regulations – NOT USED

17.02. Hours of Work

A. Unless noted otherwise, no work, including material hauling to/from the site and equipment movement, shall be performed during the days and hours restricted by and set forth in this Article.

B. No work shall take place between 5:00 p.m. and 8:00 a.m. on weekdays. The Contractor's attention is directed to Article 17.07. Truck Traffic and Hauling and Article 17.08. Parking for Additional Restrictions.

C. Unless noted otherwise on the Drawings or these Specifications, or approved in writing by the Engineer, no work shall be performed on Saturdays, Sundays, or on any of the holidays listed below.

D. Holidays are defined as: New Year's Day, Martin Luther King's Birthday, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Friday After Thanksgiving, and Christmas Day. If any of the above holidays should fall on a Sunday, the following Monday shall also be considered a holiday; and if a holiday should fall on a Saturday, the previous Friday shall also be considered a holiday.

17.03. Noise Pollution and Vibration

17.03.01. Noise

A. The Contractor shall install sound control measures as shown on the Drawings and as specified in these Specifications.

B. Noise levels from construction operations shall not exceed 70 dBA at any point along the outside perimeter of the Contractor-installed sound wall.

B. Noise Monitoring: The Engineer may occasionally take sound readings with a hand held noise level meter during construction and operation of any noise producing equipment to monitor Contractor's compliance with the noise criteria. Any operation not in compliance with the noise criteria shall be removed from the job site as directed by Engineer.

C. Full compensation for conforming to the requirements of this Article including monitoring, preparing, submitting, and maintaining all reports and documentation shall be considered as included in the prices paid for the various items of work and no additional compensation will be allowed therefor.

17.03.02. Vibration Monitoring – NOT USED

17.04. Air Pollution

A. Contractor's attention is directed to Standard Provisions Article 6.30 Air Pollution.

17.05. Spillage and Dust

A. Contractor's attention is directed to Standard Provisions Article 6.31 Spillage and Dust.

17.06. Traffic Control

A. Contractor's attention is directed to Standard Provisions Article 6.32 Traffic Control.

17.07. Truck Traffic and Hauling

A. The Contractor shall obtain, at Contractor's expense, all applicable Haul Route Permit(s), as required, from the authority having jurisdiction.

B. Truck traffic and haul routes shall comply with applicable regulatory permits, ordinances and as further specified herein.

17.07.01. Truck Arriving Early, Truck Idling and Queuing

A. The District actively seeks to avoid or minimize unnecessary disturbance of the neighborhood from construction activities. Accordingly, all deliveries shall be coordinated to prevent disruption of the neighborhood.

B. Idling, queuing, and hauling shall comply with local permits and ordinances and as further specified herein. Idling, queuing, and hauling shall be modified at the Contractor's expense in response to complaints by residents and commercial establishments.

17.08. Parking

A. Contractor personnel vehicle and equipment parking, and access shall comply with local permits, regulations, ordinances and as further specified herein. Parking shall be modified at the Contractor's expense in response to complaints by residents, commercial establishments, and/or local officials and jurisdiction.

B. All construction equipment and worker vehicles shall park in the designated staging area as indicated on the Drawings. Workers shall enter the site as soon as they arrive to the site.

17.09. Discovery of Archeological Artifacts and Human Remains

A. No known archeological sites were discovered on the site. If, however, burials or archeological artifacts are encountered during construction, the Contractor shall halt work immediately within 50 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. The Contractor shall secure and protect the zone from vandalism. The Contractor's attention is directed Article 6.26—Burial Sites and Article 6.28—Delay Due to Archeological Discovery for additional requirements.

17.10. Aesthetic Requirements – NOT USED

17.11. Recreation – NOT USED

17.12. Utilities and Service System – NOT USED

17.13. Payment

A. Unless noted otherwise, full compensation for work involved in complying with all requirements under Section 17 shall be considered incidental and included in the contract prices paid for the various items of work involved and no additional time or compensation will be allowed therefor.

SECTION 18. ENVIRONMENTAL

18.01. Compliance With NPDES General Permit

A. Contractor attention is directed to Article 18.03. BMP Action Plan.

18.01.01. SWPPP – NOT USED

18.01.02. Storm Water BMPs – NOT USED

18.01.03. Risk Level 1 Requirements – NOT USED

18.01.04. Risk Level 2 Requirements – NOT USED

18.01.05. Risk Level 3 Requirements – NOT USED

18.01.06. Regulatory Fines – NOT USED

18.01.07. Payment – NOT USED

18.02. Other Discharge Permits – NOT USED

18.03. BMP Action Plan

A. The Contractor shall prepare and implement a BMP Action Plan.

B. The BMP Action Plan shall incorporate the storm water BMPs and certain Risk Level 1 requirements in accordance with the NPDES General Permit (Order # 2009-0009-DWQ). A copy of the NPDES General Permit can be found at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.pdf.

C. The Contractor shall comply with the following requirements as outlined below in accordance with Attachment C of the NPDES General Permit.

1. Effluent Standards
2. Good Site Management "Housekeeping"
3. Non-Storm Water Management
4. Erosion Control
5. Sediment Control
6. Run-on and Runoff Controls
7. Inspection, Maintenance and Repair, except that a QSP and SWPPP are not required.

D. The BMP Action Plan shall include: (1) a site map showing the construction areas, staging areas, and where BMPs and other requirements are implemented; and (2) a diagram of site storm water drainage patterns including the local storm drain system and the receiving waterway.

E. The Contractor shall submit and receive a favorable review of the BMP Action Plan by the Engineer prior to the commencement of any work activities in the field.

18.03.01. Storm Water BMPs

A. The BMP Action Plan shall incorporate appropriated Storm Water BMPs as required.

B. The Storm Water BMP's shall be in accordance with the 2009 *CASQA Construction BMP Handbook/Portal,* which is available at www.cabmphandbooks.com.

C. The Storm Water BMPs shall include, but not be limited to:

1. Erosion Control BMPs
2. Sediment Control BMPs
3. Run-on Runoff Control BMPs
4. Wind Erosion Control BMPs
5. Tracking Control BMPs
6. Non-stormwater Management BMPs
7. Waste Management and Materials Pollution Control BMPs

18.03.02. Payment

A. Full compensation for doing all work necessary to prepare and implement the BMP Action Plan, including all materials, labor, equipment, services, supervision, documentation, and submittals, shall be considered incidental and included in the other items of work and no additional compensation will be made therefore.

18.04. Water Pollution Nuisance

A. The Contractor shall remedy immediately any public nuisance or deficiency arising from, or in consequence of Contractor's failure to perform the work specified under Article 18.03.

B. Upon the Contractor's failure to make appropriate and timely remedies as directed by the Engineer in the best interests of the public, the Engineer may employ private or public work forces and equipment to perform the work. The actual cost of employing such forces and equipment shall be doubled and then subtracted from the monies due, or that may become due, the Contractor. Such action(s) taken by the Engineer shall not preclude the Engineer from taking other appropriate actions, and shall not relieve the Contractor of responsibility to comply with these Specifications.

18.05. Regulated Material Management

A. Contractor’s attention is directed to Standard Provisions Article 6.34 Regulated Material Management.

18.05.01. Asbestos Management

A. Contractor’s attention is directed to Standard Provisions Article 5.15 Asbestos-Related Work.

18.05.02. Lead Management – NOT USED

18.06. Solid Materials Management

18.06.01. Definitions

A. ***Certified Facility*—**A reuse, recycling, composting, or materials recovery facility meeting the required diversion percentages set forth in this specification which the Engineer has determined can accept diverted materials, has obtained all applicable federal, state and local permits and is in full compliance with all applicable regulations for reuse, recycling, composting and/or materials recovery.

B. ***Construction Waste*—**Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste does not include any of the above-specified materials/solid waste that contains contaminated or hazardous substances. Construction waste does not include excavated soil or groundwater.

C. ***Demolition Waste*—**Building and site improvement materials resulting from demolition or selective demolition operations. Demolition waste does not include any of the above-specified materials/solid waste that contains contaminated or hazardous substances.

D. ***Disposal*—**Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

E. ***Divert/Diversion*—**To use material for any lawful purpose other than disposal in a landfill or transformation facility.

F. ***Post-Consumer Recycled Content*—**The percentage of a new product which contains material that was recycled from product that was used by the end consumer and then collected for recycling.

G. ***Recycle*—**Recovery of demolition or construction waste for subsequent processing in preparation for use in some other form.

H. ***Salvage*—**Recovery of demolition or construction waste and subsequent sale or reuse in the same form in another facility.

I. ***Transformation Facility*—**A facility whose function is to convert, combust or otherwise process solid waste by incineration, pyrolysis, destructive distillation, or gasification or to chemically or biologically process solid waste for the purpose of volume reduction, synthetic fuel production or energy recovery. A composting facility is not a transformation facility.

18.06.02. Construction and Demolition Waste Management

A. The Contractor shall submit a Solid Materials Management Plan identifying procedures to be used for management of construction and demolition waste generated by the work, including the facilities to be used for both disposal and recycling/salvaging and the estimated quantities and percentages (by weight) of construction demolition waste disposed and recycled/salvaged categorized by waste type. For each facility listed in the waste management and recycling plan, the Contractor shall provide facility name and address and facility owner name and contact information. This submittal shall be approved by the Engineer prior to commencement of any work on the project site.

B. West Valley Collection & Recycling, LLC, is the exclusive roll-off and debris box provider of the City of Campbell. The Solid Materials Management Plan shall specify West Valley Collection & Recycling if roll-off and/or debris box is used.

C. The Contractor is directed to the City of San Jose's Construction and Demolition Deposit Program Certified Facility List (http://www.sjrecycles.org/business/pdf/cddd_certified_list.pdf) for local construction and demolition waste recycling service provider listings. Additional recycling resources are available at www.ciwmb.ca.gov/condemo/ and www.crra.com/cdc/index.html.

D. At the conclusion of the Project, the Contractor shall complete and submit a Solid Materials Management Report Form which documents materials recycled/salvaged and disposed and demonstrates compliance with the requirements specified herein, facilities utilized, and weights of construction and demolition waste generated by the Project, as well as attach receipts that verify materials and quantities disposed and recycled/salvaged. The Contractor shall complete and submit the Form with the request for final payment. The Form is included in Appendix D.

E. Full compensation for completing the Solid Materials Management Plan and for completing the Solid Materials Management Report Form shall be considered as included in the contract price for various items of work involved and no additional compensation will be allowed therefore.

18.06.03. Post-Consumer Recycled Content Requirements – NOT USED

18.07. Migratory Birds

18.07.01. Regulatory Requirements

A. The Contractor shall comply with all applicable federal and state laws, rules and regulations related to protection of migratory birds. The Contractor's attention is directed to the federal Migratory Bird Treaty Act (16 USC 703-712 50 CFR Part 21 and 50 CFR Part 10), and the California Fish and Game Code Sections 2000, 3503, 3503.5, 3513, and 3800, that protect migratory birds, their nests, and their eggs from disturbance or destruction.

B. The Contractor shall carry out all activities in a manner consistent with the Migratory Bird Permit Memorandum (Appendix E), issued by the U.S. Fish and Wildlife Service dated April 15, 2003. Except as may be noted elsewhere in this Article, active nests are those containing either an egg (or eggs) or young, and/or nests used by birds of prey (i.e., members of the orders Falconiformes and Strigiformes, known as raptors) regardless of the presence of eggs or young; whereas inactive or partially-built nests of species other than raptors do not contain any eggs or young. The District Biologist will determine the occupancy of nests and provide direction to the Contractor regarding establishment of protective buffer zones around nests.

C. The Contractor shall comply with the District Biologist requirements and direction for measures, including; awareness and training of Contractor's personnel of which migratory bird species are protected, their nesting seasons and seasonal variability; establishment of protective buffer zones around nests; and installation and maintenance of exclusion devices.

18.07.02. Scope of Work

A. The Contractor shall do all work and furnish all materials to: provide training to all Contractor personnel on the project; perform preventative and deterrence measures to prevent birds from nesting; preserve and protect pre-established protective buffer zones; establish new protective buffer zones around unprevented nests, as required; maintain and install exclusion devices, such as netting and/or wire mesh screens; and perform any other work as directed by the District Biologist and as specified herein to comply with all applicable statutes.

B. Prior to the District releasing the site to the Contractor, the Engineer and the Contractor shall assess the site to determine the presence of nesting birds protected by all applicable statutes, as well as the existing protective buffer zones and exclusion devices within or near the construction areas.

C. The District Biologist will monitor regulatory compliance and train Contractor personnel as needed, in conformance with: (i) this Article; and (ii) all applicable permit conditions.

D. The District will have monitored and controlled the site, including management of vegetation, installing and maintaining protective buffer zones and exclusion devices, as necessary, until the issuance of the Notice to Begin Work, at which time the site will be released to the Contractor. Upon accepting the site, the Contractor shall comply with the District Biologist's direction and assume responsibility for the site, including vegetation management, maintenance of existing protective buffer zones and exclusion devices, establishment of new exclusion devices, and shall perform all required work as specified herein.

18.07.03. Contractor Biologist – NOT USED

18.07.04. General Nesting Seasons

A. The nesting season in the project area is generally considered to be from February 1st through August 31st. However, annual variation in climatic conditions can alter these periods by several weeks.

18.07.05. Migratory Bird Surveys

A. The District Biologist will perform migratory bird surveys prior to any project-related activity that could pose the potential to affect migratory birds.

B. The Contractor shall notify the Engineer in writing at least 15 days and no more than 30 days in advance of initiation of project-related activities, such as movement of equipment, materials stockpiling, clearing, grubbing, excavation, establishment of site access, etc.

18.07.06. Protective Buffer Zones

A. Existing protective buffer zones, if any, are shown on the Drawings or will be communicated to the Contractor prior to District releasing the site. In addition to District established buffer zones, new protective buffer zones will be required if a nest is established or discovered during the construction period. In the event that an active nest of a protected species is discovered in the construction area during construction, or in adjacent areas considered to have the potential to be disturbed by construction, the Contractor shall notify the Engineer and establish a protective buffer zone around the nest at the direction of the Engineer. The exact location of the boundaries of protective buffer zones shall be established by the Engineer. The Contractor shall install temporary fencing at the boundary of each new protective buffer zone, except as otherwise directed by the Engineer. The fencing hall be Type ESA Temporary Fence per Caltrans Article 14-1.03. The Contractor shall attach signs labeled "Nesting Bird – Access Prohibited" at least every 50 feet along the fencing. The Contractor shall preserve and protect all protective buffer zones, including existing ones, at all times.

B. The Contractor shall be responsible for any added costs or schedule delays as a result of establishment of new nests or new protective buffer zones due to the

Contractor's failure to perform the bird exclusion responsibilities as specified under this Article.

E. The Contractor shall monitor protective buffer zone operations during construction as directed by the District Biologist. Requirements for the protection of active nests may vary depending on the location and the species involved. The following are general guidelines to be followed by the Contractor when an active nest is encountered:

- Stop any activities that may harm the nest.
- Contact the Engineer immediately.
- Only the District Biologist should approach the nest, and only if necessary.
- The Contractor shall inform employees of the presence of an active nest and take steps, described above, to avoid disturbing it.
- Until inspected by the Engineer, a 20-foot radius protective buffer zone shall be established around the nest of any non-raptor, ground-nesting bird, and a 50-foot radius protective buffer zone around nests established in shrubs, trees, on structures, on equipment, etc., except for raptor nests. Furthermore, the protective buffer zone shall be 250 feet for hawks, owls (including burrowing owls), herons, and egrets. The District Biologist may require modification of these perimeters.

18.07.07. Installation and Maintenance of Exclusion Devices

A. The Contractor shall install nesting exclusion devices to prevent potential establishment or occurrence of a nest during the construction period. The Contractor shall maintain all nesting exclusions devices, including existing ones, throughout the nesting season, or until completion of work in an area makes the devices unnecessary. The Contractor shall be responsible for the maintenance, repair, or replacement of exclusion devices until all of the work is complete. The Contractor shall remove and dispose of all exclusion devices when work in the area is complete. Any exclusion devices installed by the District prior to construction start must also be removed and disposed of by the Contractor when completion of work in the area makes the devices unnecessary, and no additional compensation will be provided therefor.

B. Bird exclusion devices shall be installed during the non-nesting season (September 1 through January 31). All exclusion devices shall be inspected daily by the Contractor to ensure integrity of the devices, and to prohibit birds from nesting without causing them harm.

18.07.08. Vegetation Management for Nest Prevention – NOT USED

18.07.09. Monitoring

A. The Contractor is responsible for performing any monitoring support work as directed by the District Biologist to assure that migratory birds, their active nests, eggs, and young are not harmed in any way.

18.07.10. Submittals – NOT USED

18.07.11. Payment

A. Full compensation for work involved in complying with the requirements of this Article shall be considered as included in the contract prices paid for the various items of work involved and no additional time or compensation will be allowed therefor.

18.08. Other Wildlife and Fish Species – NOT USED

18.09 Environmental Awareness Training

A. The Contractor is hereby informed that all supervisory-level personnel must attend environmental awareness training before work begins on the Project site. All other Contractor personnel must attend environmental awareness training within 7 days of beginning work on the project site.

B. Environmental awareness training will be administered by the District and will include the following: a one hour training session for all supervisory level staff and one 30 minute tail gate type training session for all staff below the supervisory level. Training may be conducted at the District's headquarters building.

C. Upon completion of training, personnel will be provided with an Environmental Awareness Training sticker to be placed on their hard hat. The District may require training on an annual basis.

18.10. Payment

A. Unless noted otherwise, full compensation for work involved in complying with all requirements under Section 18 shall be considered incidental and included in the contract prices paid for the various items of work involved and no additional time or compensation will be allowed therefor.

SECTION 19. QUALITY ASSURANCE REQUIREMENTS

19.01. Submittal Procedures

A. This Article includes requirements and procedures for preparing and submitting submittals, including shop drawings, product data, samples, testing plans, preconstruction submittals, and other information required by the Contract Documents.

19.01.01. General Requirements

A. Submittals shall be in accordance with Article 9.02 of the Standard Provisions unless otherwise modified herein.

B. Master Submittal List: Within 7 days after the Notice to Begin Work, the Contractor shall submit a master submittal list to the Engineer for review and approval. This list shall be in Microsoft Excel spreadsheet format and identify all originally planned submittals. The purpose of this list is to assist planning for submittal creation and review. Items on this list shall be arranged in the same order as these Specifications and shall include as a minimum the following information:

1. Item number.
2. Reference specification section number and paragraph.
3. Product, material, or description.
4. Original preparer of the submittal, as designated by the Contractor. Name, address, telephone number, and fax number of each preparer shall be appended to this master submittal list.
5. Estimated date for submission to the Engineer by the Contractor.

C. The Contractor shall identify in the master submittal list the submittals that may require long lead times for manufacturing and/or delivery and that must be submitted early to the Engineer for review.

D. The Contractor is advised that various submittals identified in the Specifications require immediate submission and must receive favorable review before on-site work can begin.

E. Make other submittals promptly in accordance with the approved project progress schedule, and in such sequence as to cause no delay in the work. The time allowed by the Contractor for submittal review shall also provide sufficient time for disapproval and resubmission.

F. The Contractor shall make a complete and acceptable submittal to the Engineer at least by the second submission. The cost associated with re-review of submittal due to Contractor's failure to comply with submittal requirements shall be borne by the Contractor per Standard Provision Article 9.02. The multiplier to be applied to the actual wages of the Engineer and/or Engineer's consultant will be 2.67.

G. Each submittal, appropriately submitted in accordance with this Article, will be returned within 15 days following receipt of submittal by the Engineer.

H. The number of copies of submittals described here supersedes the submittal copy requirements described in Standard Provisions Articles 9.02 and 10.03. The number of copies required is as follows:

1. Shop drawings and product data: Sufficient copies to allow 5 copies to be retained by the Engineer plus 1 copy to be returned to the Contractor for Contractor's use.

2. Samples: Sufficient numbers to allow 2 samples of all structural and architectural products involving color, finish, texture, or the like, and 1 sample of other products to be retained by the Engineer plus 1 sample to be returned to the Contractor for Contractor's use.

3. It shall be the Contractor's responsibility to copy and/or conform reviewed submittals in sufficient numbers for its files, subcontractors, and vendors.

19.01.02. Shop Drawings, Product Data, and Samples

A. Shop Drawings

1. Shop drawings include, but are not necessarily limited to, custom-prepared data such as fabrication on erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the work.

2. Submittal of shop drawings by simply annotating copies of the Contract Drawings is subject to rejection.

B. Product Data

1. Product data as specified in individual Sections or Articles, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data or "cuts"), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliance and applicability, roughing-in diagrams and templates, product photographs, standard wiring diagrams, printed performance

curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare parts listing and printed product warranties, as applicable to the work.

C. Samples

1. Samples specified in individual Sections or Articles, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens of coordination of visual effect, graphic symbols and units of work to be used by the Engineer or others for independent inspection and testing, as applicable to the work.

19.02. Quality Control

A. This Article includes quality control requirements and procedures for materials, products, equipment, and workmanship; inspection procedures and limitations; sampling and testing of materials; and Contractor’s quality assurance/quality control program.

19.02.01. Materials, Product, Equipment, and Workmanship

A. All materials, products, and equipment shall be new, of the specified quality, and free of defects. Where samples have been submitted, the materials, products, and equipment incorporated into the work shall be equal to the samples that have been approved. Should materials, products, and equipment required by the work not be specified or described on the Drawings, the Contractor shall provide materials, products, and equipment of a high generally accepted quality standards that are comparable to the work and meet the identifiable needs of the work.

B. Materials, products, equipment, and work not conforming to the requirements of the Contract Documents shall be considered defective and will be subject to rejection. Defective materials, products, equipment and work, whether in place or not, shall be removed immediately from the site by the Contractor, at no additional cost to the District.

C. Perform and complete work in a careful, thorough manner.

1. The Contractor shall report apparent errors, conflicts, discrepancies, or omissions in the Contract Documents to the Engineer and request instructions before proceeding with the work.

2. Engineer will issue written clarification or interpretation of Contract Document requirements in response to Contractor’s requests and other sources of information.

D. Materials, products, and equipment that are specified to require testing and inspection at the point of origin shall receive and pass such testing and inspection prior to being shipped to the project site.

19.02.02. Inspection

A. All work, materials, products, equipment, and functionality are subject to testing by the Engineer. Inspection of the work or receipt of payment shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract, and improper work shall be subject to rejection. Work and materials, products, and equipment not complying with the Contract Documents shall be corrected or removed and replaced with conforming work, materials, products, and equipment at no additional cost to the District.

B. Inspection does not waive or alter the requirements or provisions of the Contract Documents.

C. Inspection does not include the Contractor’s means, methods, techniques, sequences, or procedures for construction.

19.02.03. Sampling of Materials

A. The Contractor shall furnish samples of materials as specified and as requested by the Engineer at no additional cost to the District. Samples will be obtained and tested whenever necessary to determine the quality of the material and compliance with the Contract Documents.

B. The Contractor shall assist the Engineer, District staff, regulatory agency personnel and third parties in collecting or providing samples.

C. The Contractor shall not use materials specified to be tested in the work until such testing indicates satisfactory compliance with the Contract Documents.

19.02.04. Testing Services – NOT USED

19.02.05. Testing by District

A. The District may perform their own independent tests. In such case, the Contractor shall cooperate with the District’s independent testing firm. All costs for District testing will be borne by the District except that the costs of any retest resulting from unsatisfactory District test results shall be back charged to the Contractor.

B. The Engineer will furnish the Contractor one copy of each field and laboratory QA/QC test that is performed by the District.

19.02.06. Plumbing and Piping Quality – NOT USED

19.02.07. Right of Rejection

A. In accordance with Standard Provisions Article 9.01 the Engineer shall have the right at all times and places to reject any articles or materials to be furnished hereunder which, in any respect, fail to meet the requirements of the Contract Documents, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the work at the Site.

B. If the Contractor fails to promptly remove and replace rejected work, the Engineer may, after 7 Days notice, terminate the Contractor’s right to proceed with the affected work. The Engineer may remove and replace the affected work with District resources. The Engineer will issue a backcharge to the Contractor covering the District’s cost for performing the work in accordance with Standard Provisions Article 9.08.

19.02.08. Contractor’s Quality Assurance/Quality Control Requirements

A. The Contractor’s attention is directed to the Technical Provisions for quality assurance/quality control requirements.

B. Engineer may perform independent quality assurance audits. No Engineer audit finding or report shall in any way relieve Contractor from any requirements of this Contract.

19.03. Product Requirements

A. This Article includes general product requirements and requirements for delivery, storage, packing, loading, unloading, transportation, protection, and selection of materials and equipment. Additional specific requirements for delivery, handling, protection, loading, and unloading may be specified with the technical specification for materials and equipment.

B. Contractor’s attention is directed to Article 10.06 – Equal, Sole or Single Source, and Substitution.

19.03.01. General Product Requirements

A. Only new materials and equipment shall be incorporated into the work. All materials and equipment furnished by Contractor shall be subject to the inspection and approval of the Engineer. No material or equipment shall be delivered to the work without prior approval of submittals by the Engineer.

B. Provide products by same manufacturer when products are of similar nature, unless otherwise specified. Provide identical products when products are required in quantity. Provide products with interchangeable parts whenever possible.

19.03.02. Transportation and Delivery

A. The Contractor shall:

1. Transport and handle items in accordance with manufacturer’s instructions.

2. Schedule delivery to reduce long-term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.

3. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged, or sensitive to deterioration.

4. Deliver products to the site in manufacturer’s original sealed containers or other packing systems, complete with Material Safety Data Sheets (MSDS) and instructions for handling, storing, unpacking, protecting, and installing.

B. The Contractor may store his/her equipment and materials only in those locations approved by the Engineer. The Contractor will be responsible for maintaining and restoring any areas as required by the Engineer.

C. All items delivered to the site shall be unloaded and placed in a manner which will not: (1) hamper the Contractor’s normal construction operation or those of subcontractors and other contractors; (2) interfere with the flow of necessary traffic; and (3) interfere with District’s normal operations and maintenance activities. In addition, the Contractor shall:

1. Provide necessary equipment and personnel to unload all items delivered to the site.

2. Promptly inspect shipment to assure that products comply with requirements, quantities are correct and items are undamaged. For items furnished by others (i.e., District, other Contractors), perform inspection in the presence of the Engineer. Notify Engineer verbally, and in writing, of any problems.

19.03.03. Storage and Protection

A. Store and protect products in accordance with the manufacturer’s instructions, with seals and labels intact and legible. Storage instructions shall be studied by the Contractor and reviewed with the Engineer. Instructions shall be carefully followed by the Contractor. Arrange storage to permit ready access for inspection by the Engineer.

B. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

C. Cement, lime, and similar moisture sensitive materials shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous, and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, cracking, and spalling to a minimum.

D. All mechanical and electrical equipment and instruments subject to corrosive damage by the atmosphere if stored outdoors shall be stored in a manner as recommended by the manufacturer to prevent damage.

E. Material and equipment storage areas shall be suitably fenced and secured, if necessary, to protect the public, workers, District staff, and the materials and equipment from damage or theft.

F. Unless otherwise designated in the Contract Documents, locations and arrangements for storage sites for materials and equipment outside the District's property lines, limits of work, or right-of-way, shall be selected and maintained by the Contractor at Contractor's expense. Full compensation for furnishing such storage sites as may be necessary or required by the Contractor shall be considered as included in bid price and no additional compensation shall be allowed therefor. District shall be specifically exempted in any agreement from any liability incurred from the use of private property for construction purposes. Use of portions of the District's area at the site for materials and equipment storage shall be permitted only upon the approval of the Engineer.

G. The storage and handling of potential pollutants and hazardous materials, including, but not necessarily limited to, gasoline, diesel, oils, paint, and solvents, shall be in accordance with all local, State, and Federal laws and other requirements. Temporary special storage enclosures, double walled tanks, berms, or other protective facilities shall be provided as required by law. All hazardous materials shall be stored and handled in strict accordance with the Material Safety Data Sheets for each product. A copy of each Material Safety Data Sheet shall be submitted to the Engineer at the time of delivery of the products to the project site. See Section 18 for Storm Water Pollution Prevention requirements.

H. All materials and equipment which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified, shall be promptly removed from the site of the work, and the Contractor shall receive no compensation for the material or equipment so removed or its removal costs.

SECTION 20. PAYMENT PROCEDURES

20.01. Schedule of Bid Items

20.01.01. General Requirements

A. Refer to Bid Documents, Bid Form No. 1, Proposal Form and Bid Items, for the listing of Bid Items.

B. Unless otherwise indicated, all bid items include labor, materials, tool, equipment, and incidentals in accordance with the Drawings and Specifications to complete the items.

C. No separate payment will be made for any item that is shown on the Drawings and/or specified in these Specifications but not specifically set forth in Schedule of Bid Items, and all cost therefore shall be included in the prices named in the Schedule of Bid Items for the various appurtenant items of work.

D. Where there is an overlap in the work paid for under different bid items, the work will be paid for only once under the appropriate bid item(s), as determined by the Engineer.

20.01.02. Description of Bid Items

A. Bid Item No. 1—MOBILIZATION

1. Scope of Work: This bid item shall include furnishing all work and materials required to complete preparatory work and appurtenant operations, including but not limited to, the assembly and transportation of all necessary tools, equipment, personnel, and materials to and from the work site to perform the Work; coordinating with the City of Campbell on parking lot closures, setting up signage, notices, and other project communications; removal of all equipment and subcontractor equipment, including roll-off bins and debris boxes; final site cleanup work; and other work as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Mobilization shall be included in the lump sum bid price bid for MOBILIZATION, Bid Item No. 1. Progress payments will be made in accordance with Section 9 of the State Specifications.

B. Bid Item No. 2—SAMPLING AND RECORDS

1. Scope of Work: This bid item shall include furnishing all work and materials required to complete sampling and to prepare reports, records, and logs during borehole drilling operations as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Sampling and Records shall be included in the lump sum bid price for SAMPLING AND RECORDS, Bid Item No. 2.

C. Bid Item No. 3—SONIC BOREHOLE DRILLING

1. Scope of Work: Unless noted otherwise herein, this bid item shall include furnishing all work and materials required to drill a borehole by sonic drilling method (to allow the assessment of lithologic and hydrogeologic conditions by the District), to collect soil samples for laboratory analyses, and to construct nested monitoring wells as shown on the Drawings and as specified in these Specifications. Compliance with plumbness and alignment requirements is included in this bid item.

2. This bid item includes furnishing all work, including labor and equipment, required to install casing, screen, and artificial filter pack, and to complete annular sealing work. Payment for furnishing materials required to install casing, screen, and artificial filter pack and to complete annular sealing work is included in other items of work.

3. Measurement and Payment: Full compensation for furnishing all work and materials for Sonic Borehole Drilling shall be included in the unit price bid per lineal foot for SONIC BOREHOLE DRILLING, Bid Item No. 3.

D. Bid Item No. 4—DIRECT OR REVERSE ROTARY BOREHOLE DRILLING

1. Scope of Work: Unless noted otherwise herein, this bid item shall include furnishing all work and materials required to drill a borehole by direct or reverse rotary method and to construct nested monitoring wells as shown on the Drawings and as specified in these Specifications. Compliance with plumbness and alignment requirements is included in this bid item.

2. This bid item includes furnishing all work, including labor and equipment, required to install casing, screen, and artificial filter pack, and to complete annular sealing work. Payment for furnishing materials required to install casing, screen, and artificial filter pack and to complete annular sealing work is included in other items of work.

3. Measurement and Payment: Full compensation for furnishing all work and materials for Direct or Reverse Rotary Borehole Drilling shall be included in the unit price bid per lineal foot for DIRECT OR REVERSE ROTARY BOREHOLE DRILLING, Bid Item No. 4.

E. Bid Item No. 5—BOREHOLE GEOPHYSICAL TESTING

1. Scope of Work: This bid item shall include furnishing all work and materials required to complete borehole geophysical testing after the

direct or reverse rotary borehole has been drilled to total depth as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Borehole Geophysical Testing shall be included in the lump sum bid price for BOREHOLE GEOPHYSICAL TESTING, Bid Item No. 5.

F. Bid Item No. 6—2-INCH WELL CASING

1. Scope of Work: This bid item shall include furnishing all materials required to install 2-inch diameter permanent well casing required for the construction of monitoring wells as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for 2-Inch Well Casing shall be included in the unit price bid per lineal foot for 2-INCH WELL CASING, Bid Item No. 6.

G. Bid Item No. 7—2-INCH WELL SCREEN

1. Scope of Work: This bid item shall include furnishing all materials required to install 2.0-inch diameter well screen in the individual wells in each nesting monitoring well as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for 2-Inch Well Casing shall be included in the unit price bid per lineal foot for 2-INCH WELL SCREEN, Bid Item No. 7.

H. Bid Item No. 8— ARTIFICIAL FILTER PACK

1. Scope of Work: This bid item shall include furnishing all materials required to install artificial filter packs in all monitoring wells as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for Artificial Filter Pack shall be included in the unit price bid per lineal foot for ARTIFICIAL FILTER PACK, Bid Item No. 8.

I. Bid Item No. 9— ANNULAR SEALING – BENTONITE

1. Scope of Work: This bid item shall include furnishing all materials required to seal annular spaces with bentonite as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for Annular Sealing – Bentonite shall be included in the unit price bid per lineal foot for ANNULAR SEALING - BENTONITE, Bid Item No. 9.

J. Bid Item No. 10— ANNULAR SEALING – CEMENT

1. Scope of Work: This bid item shall include furnishing all materials required to seal annular spaces with cement as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for Annular Sealing – Cement shall be included in the unit price bid per lineal foot for ANNULAR SEALING - CEMENT, Bid Item No. 10.

K. Bid Item No. 11— WELL DEVELOPMENT

1. Scope of Work: This bid item shall include furnishing all work and materials required for well development at each completed monitoring well as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all materials for Well Development shall be included in the lump sum price bid for WELL DEVELOPMENT, Bid Item No. 11.

L. Bid Item No. 12— WELLHEAD COMPLETION

1. Scope of Work: This bid item shall include furnishing all work and materials required for wellhead completion at all completed monitoring wells as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Wellhead Completion shall be included in the unit price bid for WELLHEAD COMPLETION, Bid Item No. 12.

M. Bid Item No. 13—PAVING AND SURFACING

1. Scope of Work: This bid item shall include furnishing all work and materials required to complete temporary and permanent paving, surfacing, and striping as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Paving and Surfacing shall be included in the lump sum price bid for PAVING AND SURFACING, Bid Item No. 13.

N. Bid Item No. 14— SOUND CONTROL

1. Scope of Work: This bid item shall include furnishing all work and materials required for installation, maintenance, and removal of sound wall and compliance with noise limits as shown on the Drawings and as specified in these Specifications.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Sound Control shall be included in the lump sum price bid for SOUND CONTROL, Bid Item No. 14.

O. Bid Item No. 15— DISPOSAL OF DRILLING FLUIDS AND CUTTINGS

1. Scope of Work: This bid item shall include furnishing all work and materials required to dispose of drilling fluids and cuttings at an offsite facility as shown on the Drawings and as specified in these Specifications. Disposal of discharge water is included in other items of work.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Disposal of Drilling Fluids and Cuttings shall be included in the lump sum price bid for DISPOSAL OF DRILLING FLUIDS AND CUTTINGS, Bid Item No. 15.

P. Bid Item No. 16— DISCHARGE WATER

1. Scope of Work: This bid item shall include furnishing all work and materials required to dispose of water resulting from well development operations as shown on the Drawings and as specified in these Specifications. Disposal of drilling fluids is included in other items of work.

2. Measurement and Payment: Full compensation for furnishing all work and materials for Discharge Water shall be included in the lump sum price bid for DISCHARGE WATER, Bid Item No. 16.

20.02. Progress Payments and Schedule of Values

A. This Article includes requirements for the preparation, format, and submission of the Schedule of Values.

B. Progress payments will not be made until the Schedule of Values has received favorable review by the Engineer.

C. No progress payment made to the Contractor or its sureties will constitute a waiver of the liquidated damage under Article 7.06 of these Specifications.

20.02.01. Preparation

A. Prepare preliminary and final Schedule of Values identifying costs of all bid items. For lump sum bid items, include costs of all major components of work under that bid item. No component of lump sum bid items shall have a duration exceeding 15 days except concrete curing, submittal review, equipment fabrication, and deliveries, or a value greater than $50,000. An exception to this requirement is the purchase of equipment.

B. Assign prices to major components of lump sum bid items totaling the bid item price. Base prices on costs associated with scheduled activities based on the Progress Schedule for each major component of work. Each bid item and each component of lump sum bid items shall include a directly proportional amount of the Contractor’s overhead and profit. The Contractor’s overhead and profit shall be completely distributed among all bid items of work, including components of lump sum bid items. Provide additional cost documentation to the Engineer when requested so that values can be verified.

C. Submit the preliminary Schedule of Values within 14 days from the date of the Notice to Begin Work and revise to incorporate Engineer’s comments until a final Schedule of Values is agreed upon. This information shall be used in the preparation of the Progress Schedule under Section 11.

D. For all construction change order authorizations, provide change order authorization breakdown to append to the final Schedule of Values items for at least the following components: (a) site work, (b) structure, (c) electrical, (d) mechanical, (e) instrumentation, (f) heating, ventilation, and air conditioning, (g) demolition, (h) submittals, operation and maintenance manuals, and training; and (i) testing and startup. Provide additional cost documentation to the Engineer when requested.

E. The Contractor shall not change the final approved Schedule of Values without the approval of the Engineer. The Schedule of Values has a one-to-one direct relationship to the list of activities on the Contractor’s Progress Schedule. Additions or deletions of activities on the Contractor’s Progress Schedule will require an addition or deletion of line item value to the Schedule of Values. The Contractor must submit requested changes to the approved Schedule of Values to the Engineer for approval.

F. The Contractor shall list and maintain all values for items of equipment that will be submitted for material on-site payment separately on the Schedule of Values and on the Progress Schedule. These material items will not be “progressed” as a part of the physical progress assessment.

20.02.02. Submittals

A. Submit corrected Schedule of Values within 10 days upon receipt of reviewed Schedule of Values comments, but no later than 10 days prior to anticipated submittal of the first Application for Payment.

20.02.03. Preliminary Schedule of Values

A. Table 20.02.03.A below is an acceptable form for the preliminary Schedule of Values.

B. The preliminary and final Schedule of Values shall be prepared into a Microsoft Excel format onto 8½-inch by 11-inch paper. Identify the schedule with:

1. District's Name, Project Name and Project No.
2. Name and address of Contractor.
3. Date of submission.

20.03. Cost Summaries

A. Prepare a "Summary of Cost Information" on each major item of work listed in the Schedule of Values. Identify the value of work completed for both the payment period and job to date.

B. Prepare a "Cash Flow Summary," and a corresponding "Cash Flow 'S' Curve," indicating the total dollar amount of work planned for each month of the Project. Equate sum of monthly amounts to the Total Bid Price. Update the Cash Flow Summary and Cash Flow "S" Curve every 60 days or as directed by the Engineer.

20.04. Partial Payment—Inclusion of Materials On-Site

A. Payments will be made by the District to the Contractor for materials and equipment furnished and delivered to the site by the Contractor and not yet incorporated into the work subject to the following requirements:

1. Materials, as used herein, shall be considered to be those items that are fabricated and manufactured goods and equipment. Only those materials for which the Contractor can transfer clear title to the District will be qualified for partial payment. Temporary construction materials (e.g., shoring) do not qualify for partial payment. Materials that are not on site will not be considered for payment.

2. Only materials that have received favorable review of submittals will qualify for consideration.

3. Eligible materials must be delivered, properly stored, protected, and maintained in a manner favorably reviewed by the Engineer at the site.

4. Only the Contractor's actual net cost for materials may be paid prior to inclusion in the work. The Contractor's actual net cost for the materials must be supported by furnished invoices of suppliers, and other documentation requested by the Engineer.

5. Materials delivered to the site less than 30 days prior to their scheduled incorporation shall not qualify for partial payment consideration.

6. Final payment shall be made only for materials actually incorporated into the work. Upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

7. Partial payments for materials on site shall not be deemed to be final payment for the material nor relieve the Contractor of its obligations under the Contract.

8. Partial payments for materials on site shall be subject to retention per Article 8.03.

9. See Article 20.05 for additional documentation required for partial payment for materials on site.

20.05. Applications for Payment

A. This includes procedures for the preparation and submission of monthly Applications for Payment.

20.05.01. General

A. Applications for payment shall be based upon actual progress as measured on the Progress Schedule developed under Section 11 and its approved assignment of the Schedule of Values developed under Article 20.02.

B. Fill in the information required on this form.

C. Provide a list of materials on site but not yet incorporated into the work that are sought for partial payment and supporting documentation.

D. When change order authorizations are executed, add each such authorization to the applicable bid items, or separately at end of listing of Schedule of Values items, as appropriate.

    1. Identify the change order authorization by number and description.
    2. Provide the value of change order authorization in appropriate column.

E. After completing, submit Application for Payment.

F. Engineer will review application for accuracy. When accurate, Engineer will transmit application for processing of payment. Engineer will return inaccurate and/or incomplete Applications for Payment with comments for Contractor action.

G. Each Application for Payment shall be transmitted under the signature of the responsible officer of the Contractor.

20.05.02. Substantiating Data

A. Provide substantiating data with cover letter identifying:

1. Project Name and Project No.

2. Application number and date.

3. Detailed list of enclosures.

4. For all stored materials (fabricated and manufactured goods and equipment only) on site, but not yet included in the work, with item number and identification on the application, Contractor shall complete the District form “Request for Payment for Materials on Hand.” The “Project Inspector” described on this form shall be the Engineer. The Contractor shall provide a description of each specific material, quantity, value, submittal review status, substantiating evidence of purchase and cost, complete the affidavit, and physically separate and identify the material as property of the District. References to off-site storage on District form “Request for Payment for Materials on Hand” are not applicable to this work.

5. Submit “certified” payroll.

6. Description of record drawing completion status.

20.05.03. Submittals

A. Submit five copies of Application for Payment and substantiating data with cover letter.

SECTION 21. CONTRACT CLOSEOUT

21.01. Project Completion and Acceptance

21.01.01. Use Before Acceptance

A. District has the right to utilize or place into service any item of equipment or other usable portion of the work before acceptance of the entire Project. Whenever District plans to exercise said right, the Engineer will notify Contractor in writing, identifying the specific portion or portions of the work to be so utilized or otherwise placed into service, hereinafter referred to as “Use Before Acceptance.”

B. Until the Engineer issues such written notification, Contractor is responsible for all care and maintenance of all items or portions of the work.

C. Upon District’s issuance of written notice of Use Before Acceptance, District accepts responsibility for the protection and maintenance of all such items or portions of the work described in the written notice, excepting any injury or damage resulting from Contractor’s actions or negligence.

D. If, by reason of District’s Use Before Acceptance, the premium for the Contractor’s bodily injury and property damage insurance is increased, District will reimburse the Contractor for the additional amount necessarily incurred, allocable to the area and the period of District’s occupancy, up to the date of acceptance of the work.

E. District’s Use Before Acceptance does not constitute acceptance of the work, or any portion of the work, by District, nor will it relieve the Contractor of responsibility for correcting defective and/or deficient work or materials found at any time before acceptance of the work or during the guaranty period after District’s Acceptance. However, when the Project includes separate buildings, and one or more of the buildings is complete and entirely occupied by District, then upon written request by the Contractor and by written consent from District, the guaranty period on the building entirely occupied by District will commence to run from the date of District occupancy of such building or buildings.

F. Notwithstanding any Use Before Acceptance, Contractor retains full responsibility for fulfillment of all the requirements of the Contract documents.

G. Should the District elect to partially occupy or use portions of the work prior to acceptance, Contractor must perform final cleaning for those portions of the work prior to their being so occupied or used.

21.01.02. Contractor’s Responsibility to Manage Incomplete and Deficient Work

A. The Contractor is responsible for identifying and managing incomplete and deficient work. Incomplete and deficient work includes, but is not limited to: non-compliance items, re-work items, and non-conforming tests; deficiencies relating to inspections by the Building Official; and items of work not complete per the Contract.

B. The Preliminary and Final Inspection will not be conducted until:

1. The entire work of the Milestone/Project is complete;

2. Cleaning has occurred pursuant to Articles 18.03 and 21.06; and

3. Deficient work identified in all outstanding non-compliance notices has been corrected.

C. For each Milestone completion, the Contractor must include activities for conducting the Preliminary Final Inspection, completion of Deficiency List, and Final Inspection in Contractor's Progress Schedule.

21.01.03. Milestone Completion Preliminary Final Inspection

A. When the Contractor believes the work of a Milestone or Project is complete, including final cleaning of the work area associated with the Milestone, the Contractor shall submit to the Engineer three (3) copies of a written certification that the work of the Milestone is complete and request a Preliminary Final Inspection of the work of the Milestone by the District.

B. Prior to requesting the inspection, the Contractor shall furnish the following Milestone Completion Certification to District:

"*To the best of my knowledge, all work of Milestone (#) has been completed, inspected, tested and is in full compliance with the requirements of the Contract.*"

Certified by Contractor: ______________________ *Date:* _____________
(Signature)

C. Within seven (7) days of receipt of the Contractor's certification that all work of a Milestone/Project is complete, the Engineer will conduct a Preliminary Final Inspection with the Contractor.

D. If the Engineer determines that, based on the results of the Preliminary Inspection, the incomplete/deficient work identified is greater in substance and/or volume, than can be appropriately declared as Deficiency List, then the work is not complete enough to complete the Preliminary Final Inspection. The Contractor will be so notified in writing. Contractor must complete the work and re-initiate procedures for another Preliminary Final Inspection. Any costs to District for more than two (2) Preliminary Inspections may be charged to the Contractor.

E. If the results of the Preliminary Final Inspection are satisfactory to the Engineer, a Deficiency List will be prepared and issued to the Contractor. Neither the

District's preparation of the Deficiency List, nor any omission from the Deficiency List of items of Incomplete and/or Deficient Work, relieves the Contractor from completing all the work required by the Contract.

21.01.04. Milestone Completion Final Inspection

A. Prior to requesting the Milestone Completion Final Inspection, the Contractor shall furnish the following Milestone Completion Certification to the District:

"*The work of Milestone (#) has been completed, inspected, tested and is in full compliance with the requirements of the Contract. All Deficiency List items identified during the Preliminary Final Inspection have been completed.*"

Certified by Contractor: ______________________ *Date:* _____________
(Signature)

B. Upon delivery of such certification to the Engineer, and if the Engineer agrees with the Contractor's certification, a Final Inspection will occur within ten (10) calendar days of the Contractor's delivery of Milestone Completion Certification.

C. If the Engineer determines the work is deficient, Contractor will again be furnished with a Deficiency List identifying the observed deficiencies in the work. After all deficiencies have been corrected, Contractor must initiate procedures for another Final Inspection. If more than two (2) Final Inspections are required any costs to the District for additional Final Inspections may be charged to the Contractor.

D. After acceptance of the Contractor's Milestone Completion Certification following the Final Inspection, the Engineer will issue a Milestone Completion letter to the Contractor. This letter will establish the date of the completion of the Milestone. The assessment of Liquidated Damages, if applicable, will cease accruing as of the date of Milestone Completion.

E. Contractor's Progress Schedule must include activities for Final Inspection of Milestones.

21.01.05. Project Completion

A. The Contractor shall certify that the entire work of the Project is complete. Completion of the Project includes submission to and acceptance by the District of all Milestone completion submittals. Article 21.05.02 describes in greater detail the submittal requirements for Contract Close-out.

B. Prior to the Engineer issuing the Project Completion letter, the Contractor shall furnish the following Project Completion Certification to District. This certification is in addition to any intermediate Milestone Completion certifications:

> "*The entire work of the Project has been completed, inspected, tested and is in full compliance with the requirements of the Contract documents. All Deficiency List items have been completed. All items on the rework list have been completed. All Close-out Documents required by Article 21.05.02 have been submitted to and accepted by the Engineer.*"
>
> *Certified by Contractor:* ____________________ *Date:* ____________
> *(Signature)*

C. The Contractor's certification shall also include the completion of all Deficiency List work and the correction of all rework.

D. After acceptance of the Contractor's final certification, the Engineer will issue a Project Completion letter to the Contractor. This letter will establish the date of the Completion of Project. The assessment of Liquidated Damages, if any, will cease accruing as of the date of Project Completion.

21.01.06. Acceptance of Work

A. After issuing the Project Completion letter, the Engineer will recommend that the District Board of Directors formally accept the work.

B. Acceptance of the work will be made by the District Board of Directors and only after the Engineer has recommended acceptance.

C. After the Board of Director's formal acceptance of the work, the Clerk of the Board will record a Notice of Completion and Acceptance.

D. District's acceptance establishes conformity with the Contract except for delays in completion, latent defects, fraud, or such gross errors as amount to fraud, willful misconduct, or gross negligence, and subject to any Guarantee and Warranty, express or implied. Determinations by Engineer that the work is complete or acceptance of the work by the Board of Directors does not bar any action by the District against the Contractor pursuant to Article 21.02.

E. Contractor is notified that the process to agendize the formal acceptance of work (and which is initiated after the District issues the Project Completion letter) and to present to the District Board of Directors may take approximately two months.

21.02. Guaranty and Guaranty Bond

21.02.01. Guaranty

A. The guaranty period for any item of equipment or usable portion of the work that the District utilizes or places into service shall commence on the date of the Notice of Completion and Acceptance of the entire Project.

B. The Contractor hereby agrees to make, at its own expense, all repairs or replacements necessitated by defects in materials or workmanship, pavement subsidence or pavement damage, supplied or constructed under the terms of this Contract, and to pay for any damage to other works resulting from such defects, that becomes evident within a minimum of three years after the date of Notice of Completion and Acceptance of the entire Project or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract documents. The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of package equipment components. Packaged equipment components are defined to include equipment furnished under the Technical Provisions. The Contractor also agrees to indemnify, defend and hold the District harmless from liability of any kind arising from damage due to said defects.

C. The Contractor shall execute and submit a completed Guaranty Form in the format appended to this Section for the work. The Guaranty Form shall be submitted to the Engineer in accordance with Article 3.11 of the Standard Provisions.

D. The Contractor shall, upon receipt of notice in writing from the District, promptly make all repairs arising out of defective materials, workmanship, or equipment. The District is hereby authorized to make such repairs, and the Contractor and its Surety shall be liable for the cost thereof, if ten days after giving of such notice to the Contractor, the Contractor has failed to make or undertake the repairs with due diligence. In case of emergency, where in the opinion of the District delay could cause serious loss or damage, repairs may be made without notice being sent to the Contractor, and the expense in connection therewith shall be charged to the Contractor, and its Surety shall be liable for the cost thereof.

E. Prior to the expiration of the Guaranty period, the District reserves the right to hold a meeting and require the attendance of the Contractor and relevant subcontractors and suppliers. The purpose of the meeting is to review guaranties, bonds, and maintenance requirements and determine the required repair or replacement of defective items.

F. For the purpose of this Section, acceptance of the work or a portion of the work by the District shall not extinguish any covenant or agreement on the part of the Contractor to be performed or fulfilled under this Contract which has not, in fact, been performed or fulfilled at the time of such acceptance. All covenants and agreements shall continue to be binding on the Contractor until they have been fulfilled.

21.02.02. Guaranty Bond

A. The Contractor shall furnish a written Guaranty Bond. Unless noted otherwise, this Guaranty Bond shall be for a period of three years after the date of Notice of Completion and Acceptance and shall cover all work. It shall be furnished, in a form acceptable to the Engineer in the format of the attachment to this Section, prior to final payment.

B. The amount of the Guaranty Bond shall be no less than 15 percent of the Total Contract Price.

SANTA CLARA VALLEY WATER DISTRICT

GUARANTY FORM

Guaranty for
(Project Name and Project Number)

San Jose, CA

We hereby guarantee the Project commonly known as _________________________________ has been completed in accordance with the requirements of the Contract documents and further agree that the work to be free of defects in workmanship, equipment and materials and to remain free of such defects for a period of three (3) years from the date of acceptance of the work by the District's Board of Directors, unless a longer/shorter period(s) is called for by the Contract documents.

We agree that if any defects in materials, workmanship, or equipment become evident, we will, within ten days after written notice of such defects, commence to repair or replace the same together with any other work that may be damaged or displaced in so doing.

In the event of our failure to comply with the above mentioned conditions within a reasonable time after being notified, or should the emergencies of the case require repairs or replacements to be made before we can be notified or respond to notification, we do hereby authorize the Santa Clara Valley Water District to proceed to have the defect repaired and made good at our expense, and we will pay the cost therefor upon demand.

The Guaranty provided herein shall not be in lieu of, but shall be in addition to any warranties or other obligations otherwise imposed by the Contract documents and by law.

Contractor: ____

Signed: ____

Title: ____

Date: ____

SANTA CLARA VALLEY WATER DISTRICT

GUARANTY BOND

BE IT KNOWN BY THESE PRESENTS: That

WHEREAS, the Santa Clara Valley Water District, State of California, has awarded to ___________________________________ (hereinafter designated as "Principal") a Contract for ____; and

WHEREAS, said Principal is required under the terms of said Contract to furnish a Guaranty Bond for the faithful performance of said Contract's Guaranty.

NOW, THEREFORE, we, the Principal and ____ ________________________________ as Surety, are held and firmly bound unto the Santa Clara Valley Water District (hereinafter called "District") in the sum of _________________________ ____ Dollars ($______________________________________) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above Principal, or heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract and any alteration thereof made as therein provided, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless District, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this bond, and does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the Specifications.

In the event suit is brought upon this bond by District and judgment is recovered, Surety shall pay all costs incurred by District in such suit, including a reasonable attorney's fee to be fixed by the Court.

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by Principal and Surety above named, on the _______________ day of __________________, 20_______.

____________________________________ (Seal)	________________________________ (Seal)
____________________________________ (Seal)	________________________________ (Seal)
____________________________________ (Seal)	________________________________ (Seal)
Principal	Surety

Address ____
____

NOTE: Signature of those executing for Surety must be properly acknowledged.

21.03. Training – NOT USED

21.04. Testing and Facility Startup

A. Contractor is directed to the Technical Provisions for testing requirements.

21.05. Submission of Closeout Items

21.05.01. Record Drawings and Specifications

A. At completion of construction, and prior to the final acceptance of the work by the District, the Contractor shall deliver the following Contract record documents to the Engineer in the following form:

1. Marked-up Contract Drawings (2 copies): Bound into sets of convenient size for ease of handling.

2. Marked-up Specifications (2 copies): Bound into 3-ring vinyl binders with clear plastic spine label pockets.

3. Field Test Records (2 copies): Bound into 3-ring vinyl binders with clear plastic spine label pockets. Number all pages. Provide a complete, neat, word-processed table of contents for each binder, with page numbers for each entry.

4. Field survey record documentation.

B. Accompany the final record document submittal with a transmittal letter in duplicate, containing:

1. Date
2. Santa Clara Valley Water District and (Project Name and Project Number)
3. Contractor’s name and address
4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate
6. Signature of Contractor

21.05.02. Closeout Documents

A. At completion of construction, and prior to the final acceptance of the work by the District, the Contractor shall deliver the following Closeout Documents to the Engineer:

1. Evidence of compliance with and approval of Contractor-obtained permits and associated inspections of authorities issuing the permits.

2. Copies of all special guarantees, warranties, and bonds.

3. Evidence of release of all liens and stop notices.

4. Release of claims as outlined in the Standard and Special Provisions.

B. Provide records indicating District’s receipt and acceptance of all tools, spare parts, and extra materials as specified in the Technical Provisions.

C. Provide records indicating District’s receipt and acceptance of all O&M manuals as specified in these Specifications.

21.05.03. Keys – NOT USED

21.06. Final Cleaning

21.06.01. Schedule for Final Cleaning

A. Final cleaning is separate work from the cleaning done throughout the Project to maintain the project site in a safe and presentable condition. Final cleaning shall be a comprehensive clean up of all new and selected existing facilities begun and finished within 30 days of District’s acceptance for continuous use. Final cleaning may be performed separately by structure or area at different time periods only if approved by the Engineer.

B. Completion of this work shall be planned and scheduled to accommodate the operational and usage requirements of the District and the City of Campbell.

21.06.02. Structures – NOT USED

21.06.03. Streets, Roadways, Concrete Slabs, Sidewalks, and Paved Areas

A. Streets, roadways, concrete slabs, and paved areas shall be cleaned and pressure washed so that they are free of debris, soil, and paint or construction material spills. Painted construction markings on concrete and pavement shall be removed.

21.06.04. Storm Drainage Facilities

A. All gutters, V-ditches, swales, storm drain pipe inlets, catch basins, drop inlets, and manholes shall be cleaned of soil, vegetation, and debris.

21.06.05. Unpaved Areas

A. Unpaved areas between new facilities and between new and existing facilities shall be cleaned of all debris and construction materials. These areas shall be graded or raked to a smooth uniform surface without holes, depressions, or tire tracks.

TECHNICAL PROVISIONS

THIS PAGE INTENTIONALLY LEFT BLANK

PART 1 GENERAL

1.01 GENERAL

A. Mobilization and demobilization include the assembly and transportation of all necessary tools, equipment, personnel, and materials to and from the sites of the work to perform all of the work required. It also includes the site work necessary to accommodate borehole drilling, handling and temporary storage of drilling cuttings and fluids, geophysical logging, well construction, well development, well testing, surface completion, and final cleanup work on the grounds occupied by the Contractor at each drilling location and for each drilling, well construction, and well development method required at each site, as identified under these specifications and in the site specific technical specifications for each individual site.

B. Coordinate with City of Campbell to secure parking lot from vehicle and pedestrian traffic for restriping work.

C. Position changeable electronic sign on Budd Avenue in the approximate locations shown on the Drawings to announce parking lot closure date and time 8-10 days in advance of initial parking lot restriping and prior to sound wall removal work. Final changeable sign location shall be determined in the field in coordination with City of Campbell Public Works. Changeable sign shall be accessible to City of Campbell Public Works personnel. Provide keys and codes needed to access, change or move changeable sign to Campbell Public Works staff at City Hall, 70 North 1st Street. Electronic signs shall be large enough to allow easy reading for oncoming traffic but shall not be less than 7’W x 4’H, unless approved otherwise by the City of Campbell.

D. Post weather-proof signs within parking lot announcing parking lot closure dates and times one week in advance of initial parking lot restriping and final pavement resurfacing and restriping. Signs shall be 8 ½” x 11”, weatherproofed by lamination or enclosed in water-proof, transparent plastic casings, and securely mounted to light poles, temporary sign boards, barricades, or temporary sign posts.

E. Remove changeable electronic sign and all posted signs and temporary sign structures upon completing restriping.

F. Provide traffic and pedestrian control for the duration of the pavement resurfacing and restriping work.

G. Construction work zone/signage shall be installed in parking lot in locations, size, and quantities deemed satisfactory by the Engineer and the City of Campbell.

H. No parking signage will be provided by the City of Campbell and installed in locations and quantities deemed satisfactory by the Engineer and the City of Campbell.

I. All paving, striping, and sound wall installation/demolition work requiring parking lot closure shall occur on weekdays only and not overlap through weekends. Therefore schedule work requiring parking lot closure to begin on Monday to allow maximum buffer to complete the work before end of Friday.

1.02 REFERENCES

A. Not Applicable.

1.03 SUBMITTALS

A. Not Applicable.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for the sampling and reporting during drilling of the exploratory borehole in accordance with these specifications.

1.02 SUBMITTALS

A. Daily Reports at the end of construction and as requested by the District.

B. Water Well Driller’s Report.

C. Driller’s Log

D. Penetration Rate Logs

E. Stratigraphic Log

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DAILY REPORTS

A. Maintain and deliver upon request to the District a detailed daily report describing all work activities performed. During all drilling work, the report shall give a complete description of all soils encountered, number of feet drilled, number of hours on the job, shutdown due to breakdown, length of casing set, samples collected, and other pertinent data as requested. After drilling is completed, the daily reports shall give a description of work items completed, number of hours on the job, shutdown due to breakdown, samples collected, and other pertinent data. Fluid levels in boreholes should be measured and recorded daily prior to starting active drilling or well construction work.

B. The Contractor shall enter into the Daily Log the quantities and sources of water used daily. The Owner’s representative shall collect an archival sample of source water used for mud rotary drilling, and additional samples each time a new source of water is used to supply water to mud rotary drilling.

3.02 SOIL SAMPLING

A. Sampling Method – Sonic Drilling:

1. The soil sampling method for direct sonic drilling shall be by continuous core retrieval from the inner drill pipe throughout borehole advancement. Samples will be retained by the Contractor in plastic sleeves for review,

logging, and laboratory analyses by the Engineer. The Contractor shall assist the Engineer to securely store samples from all borings in conditions approved by the Engineer. The Engineer will be responsible for sample labeling and shipping samples to a laboratory. The Contractor will store soil cores if needed for additional review and logging, or dispose of cores not needed for samples after the Engineer confirms they are no longer needed. In no case shall the Contractor be required to store soil cores beyond the completion of all well construction work.

2. Frequency of Sampling: Soil samples shall be collected by the Contractor under the direction of the Engineer. Soil samples shall be collected continuously (or as directed) in the sonic borehole. Contractor shall be responsible for properly storing soil samples to preserve their integrity. Sample collection and storage containers shall be provided by the Contractor. Soil samples shall be collected from sonic cores either by the Engineer or the Contractor under the direction of the Engineer. The Engineer will ensure that all samples are plainly marked with boring designation, District, location, depth interval, and date and time the sample was taken; however, in the event that the Engineer is not available, the Contractor shall be responsible for recording sample information as stated above. The Contractor shall be responsible for the safe storage of soil samples until acceptance by the District or Engineer.

3.03 WATER WELL DRILLER’S REPORT

A. The Contractor shall file Water Well Drillers Reports for each well completed as part of this project. All completed Water Well Driller’s Reports will be reviewed and approved by the District and the Engineer prior to submittal to the Department of Water Resources in accordance with the provisions of the California Water Code. Copies of each approved report will also be submitted to the District and the Engineer.

3.04 DRILLER’S LOG

A. In addition to reporting requirements for the DWR Water Well Driller's Reports, the Contractor shall maintain complete logs for all borings and wells, as applicable, setting forth the following items.

1. Identification and type of all drill rigs used in all drilling and well construction,

2. Reference points for all depth measurements and measurement method(s)

3. The depths at which changes of soil occur in each boring (assistance will be provided by District)

4. The location and thickness of each aquifer in each boring (assistance will be provided by District)

5. The identification of the material of which each aquifer is composed in each boring (assistance will be provided by District)

6. The depth interval from which each soil sample was taken in each boring

7. The depth at which the borehole diameter changes in each boring

8. Total depth of completed well in each location

9. Location limits of lost circulation zones in each boring

10. The depth and length of all seal intervals in all completed wells

11. The nominal hole diameter of all wellbores at all depths

12. The type and quantity of sealing materials installed in all wells and borings

13. The type and quantity of artificial filter pack installed in all wells

14. The depth and description of the well casing, including end fittings in all wells

15. Data regarding well screen type, size, and placement in all wells

16. Any sealing off of water-bearing strata, if any, and the exact location thereof in all wells

17. The date and time for all measurements recorded, and

18. Any and all other pertinent information required by these specifications

3.05 PENETRATION RATE LOGS

A. During all drilling work the Contractor shall maintain time logs showing the actual penetration time required to drill each foot of hole (i.e., the time required to drill each drill rod). Also noted in the log shall be the types and weights of bits used in the various sections of each borehole.

3.06 STRATIGRAPHIC LOG

A. A stratigraphic log for all boreholes shall be prepared a qualified hydrogeologist working for the Engineer to accompany the set of soil samples noting depth, strata thickness, lithology (including size, range and shape of particles, smoothness, and rock type), rate of penetration, and other pertinent information. The Contractor shall cooperate and provide assistance as required in collecting soil cutting samples and data for preparation of the stratigraphic log, as indicated in Paragraph 3.02.A above.

3.07 WATER SAMPLING

A. The Contractor shall cooperate with the District or Engineer in collecting any requested water samples during drilling, development, and testing of any and all boreholes or wells. Sampling and testing will be performed by the District.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of drilling a borehole by sonic drilling methods to assess lithologic and hydrogeologic conditions, collect soil samples for laboratory analyses, and construct nested monitoring wells. All sonic borehole drilling shall be performed by an experienced well driller licensed in the State of California. Only competent workmen shall be employed on the project and a driller and a minimum of two (2) driller’s assistants must be on the job at all times during drilling. The Contractor shall drill the borehole and construct the well at the exact location designated.

B. The Contractor shall dispose all cuttings and discharge water during drilling in accordance with Sections 37 of these specifications, all local requirements contained in site specific technical specifications, and in such a way so as not to damage public, private property, or release sediment to storm drains.

1.02 SUBMITTALS

A. Submit for review and approval supporting information including drill rig age, manufacturer's name and model number of drilling equipment and other pertinent machinery proposed to be used for sonic borehole drilling.

B. Location of existing utilities prior to drilling. See Section 15.02.D.

C. Proposed drilling fluids

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 METHODS

A. Drilling of the boreholes described in this section shall employ rotary vibratory (sonic) drilling methods. The sonic drill rig should include a head unit that contains a mechanism for rotary motion and an oscillator for the production of high frequency force superimposed on the drill string. The drill rig should be capable of rotating, vibrating, lifting, and lowering drill pipe in borings up to 430 feet deep. All drilling shall be conducted in a manner that assures a sufficiently straight and plumb borehole. See Section 31 Plumbness and Alignment.

B. All cuttings generated during borehole drilling shall be disposed of in accordance with Section 37 and with all requirements included in site specific technical specifications.

3.02 SONIC BOREHOLE DIAMETERS

A. Drill Depths shall be as shown on Drawings unless directed otherwise by the Engineer. The diameter of the borehole shall be sufficient to satisfy the requirements of multi-completion wells per District Well Ordinance 90-1 and the District Well Standards. Specifically, there must be one-inch spacing between casings, and two inches spacing between the casing or screen and the borehole wall. The sonic borehole will be of sufficient diameter to accommodate two casings.

3.03 NESTED WELL CONSTRUCTION

A. A nested well composed of two (2) individual 2-inch diameter casing and screen assemblies will be constructed in the completed sonic borehole. The individual casing and screen assembly details including screen and casing lengths and depths within the nested monitoring wells shall be designated by the Engineer based upon formation sampling.

B. The nested well screens will not extend to the total depth of the boring as shown on the Drawings. The bottom of the borehole will be sealed with bentonite in accordance with Section 30 of these specifications.

C. The individual casing and screen assemblies in the nested well are anticipated to each include 20 feet of 2-inch diameter machine slotted PVC screens with 0.020-inch slot openings in accordance with Section 028 of these specifications. The screened interval in each individual well will be joined at the bottom to a silt trap tail pipe (sump) and end cap assembly not more than 5 feet long. The screen intervals will be joined at the top to blank casing extending to ground surface. The blank casing and the silt trap shall both be nominally 2 inches in diameter and conform to Section 27 of these specifications.

D. The screened intervals shall be as shown on the Drawings. Final screen placement depths shall be designated by the Engineer based upon formation sampling. The casing and screen assemblies will be placed in the borehole so as to maintain minimum filter pack and annular seal thicknesses in accordance with Section 29 and Section 30 of these specifications. The Contractor may elect to use casing centralizers to maintain the annular space requirements.

E. Annular filter pack will be placed in the boring around each individual discrete screened zone in accordance with Section 29 of these specifications. Estimated filter pack locations are shown on the Drawings. Final filter pack placement depths shall be designated by the Engineer.

F. The annular space in the interval between the filter packs will be composed of a bentonite seal conforming to Section 30 of these specifications. The annular space above the upper filter pack will be composed of a sanitary seal in accordance with Section 30 of these specifications.

3.04 DRILLING FLUID

A. No drilling fluids, including water, should be used during sonic drilling. Any drilling fluids proposed for use shall be submitted to the Engineer for approval prior to being used. Should a conflict arise between drilling fluid requirements for ease in drilling and requirements for aquifer protection and monitoring well adequacy, then the ruling requirements shall be those for aquifer protection and monitoring well adequacy.

B. The Contractor shall log any use of drilling fluid or water during sonic drilling, and provide samples to Engineer.

3.05 UTILITIES LOCATING

A. Locate existing utilities prior to drilling. See Section 15.02.D.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of drilling by direct or reverse mud rotary methods. The borehole drilled by direct or reverse mud rotary methods shall be drilled to allow the completion of geophysical logging and nested monitoring well construction. All borehole drilling by direct or reverse mud rotary methods shall be performed by an experienced well driller licensed in the State of California. Only competent workmen shall be employed on the project and a driller and a minimum of two (2) driller’s assistants must be on the job at all times during drilling.

B. Upon advancement to total depth, a suite of geophysical tests shall be completed in the borehole. The Contractor shall provide the Engineer with a minimum of 2 working days advance notice prior to reaching total depth in order to schedule geophysical testing as described in Section 26 Borehole Geophysical Testing.

C. The Contractor shall dispose all drilling fluid, cuttings, and discharge water during drilling in accordance with Section 37 of these specifications, all local requirements contained in site specific technical specifications, and in such a way so as not to damage public or private property, or release sediment to storm drains.

1.02 SUBMITTALS

A. The Contractor shall submit for review and approval supporting information including:

1. Drill rig age and manufacturer's name and model number of drilling equipment, mud pump, power unit, and other pertinent machinery.
2. Type and properties of any drilling fluids. Include initial resistivity, which is required for baseline in geophysical logging.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 METHODS

A. The drilling of the borehole shall employ hydraulic direct mud rotary or reverse rotary drilling methods. Drilling shall be conducted in a manner that assures a sufficiently straight and plumb borehole. See Section 31 Plumbness and Alignment.

The Contractor shall be responsible for designing and controlling a drilling and drilling fluids (mud) program that conforms to sampling requirements specified in Section 023 – Sampling and Records**.**

B. Artesian conditions are not known to be present at the site; however the need for and design of conductor casings at each borehole or well shall be determined by the Contractor. If the Contractor proposes to install a conductor casing to facilitate drilling any work site, a complete plan for drilling, installation, and sealing of a conductor shall be submitted to the Engineer prior to beginning work.

C. All cuttings generated during borehole drilling shall be disposed of in accordance with Section 37 and with all requirements included in site specific technical specifications.

3.02 DIRECT OR REVERSE ROTARY BORING NESTED WELL

A. The nested well in the rotary boring will be completed immediately adjacent (within 10 feet) to the nested well in the sonic boring as shown on the Drawings. Final location to be coordinated with the Engineer in the Field. The rotary boring will be drilled to an anticipated total depth of 405 feet. No sampling during drilling will be required during rotary drilling in this location. The Contractor shall complete geophysical testing of the rotary borehole prior to initiating well construction. Geophysical testing will be completed in accordance with Section 26 of these specifications.

3.03 DIRECT OR REVERSE ROTARY BOREHOLE DIAMETERS

A. The borehole shall be drilled to a final diameter suitable for the construction of 3 nested wells with discrete depth screen intervals. Final diameter of the direct or reverse rotary borehole will be determined by the diameter of the casing and screen materials, so that the requirements of District Well Ordinance 90-1 are satisfied. The diameter must be sufficient to accommodate the requirement for one-inch spacing between casings and two-inches spacing between the borehole wall and the casings. In the cement seal interval (from 3 to 50 feet below ground surface), casing spacers shall be installed every 10 feet to ensure that casings are separated by a minimum of one-inch. Casing spacers (casing centralizers) are not required to be installed in the annular filter pack or bentonite annular seal intervals. Final borehole diameter for each direct or reverse rotary borehole will be determined by the Engineer. Unit costs in feet of length of drilling shall be provided for a minimum 12-inch finished diameter borehole.

The Contractor may advance a pilot boring prior to reaming to full diameter. The minimum diameter of the finished rotary borehole shall be no less than 12 inches.

3.04 DRILLING FLUID

A. All drilling fluids shall be acceptable for water well drilling in accordance with AWWA A100-90 and shall be approved by the Engineer prior to use. Any drilling fluids proposed for use shall be submitted to the Engineer for approval prior to being used. The objective of using drilling fluids is to facilitate the removal of formation cuttings and to stabilize drilling and completion operations. No additives shall be added to the drilling fluid unless the Contractor obtains prior approval from the Engineer. All drilling fluids shall be especially compounded for water well construction, designed for minimum aquifer penetration, and shall not damage the potential capacity, efficiency, or quality of the borehole or any future wells in the drilling locations. Should a conflict arise between drilling fluid requirements for ease in drilling and requirements for aquifer protection then the ruling requirements shall be those for aquifer protection.

B. The use of any alternative drilling fluids shall be dependent on their specific characteristics with regard to aquifer penetration. In order to be considered for use, alternative drilling fluids shall be specifically formulated to minimize aquifer penetration.

C. Drilling fluid properties shall be maintained within the following limits using test procedures conforming to American Petroleum Institute R.P.-13-B- "Procedures for Testing Drilling Fluids" (API RP 13B):

1. Weight (fluid density): 70-85 pounds per cubic feet.
2. Marsh Funnel Viscosity: 32-40 seconds per quart.
3. Filtration (wall cake and filtration loss): maximum thickness of 3/32 inches with maximum 30-minute water loss of 20 cubic centimeters (cc).
4. Sand content (solids larger than 200 mesh): maximum of two (2) percent by volume.

D. Test samples for drilling fluids shall be collected at the rig pump suction with sufficient care to ensure a true and representative sample. It is the Contractor's responsibility to provide and maintain all necessary equipment for measuring fluid properties. The tests shall be conducted:

1. Every 25 feet of depth; or
2. Every four (4) circulating hours (whichever is more frequent).
3. Whenever conditions appear to have changed, problems arise, or whenever requested by the Engineer.

E. Conduct all tests and shall maintain a log showing the drilling fluid properties set forth herein including date, time, depth, viscosity, drilling fluid weight, sand content, filtration properties, pH, and any other pertinent comments

3.05 NESTED WELL CONSTRUCTION

A. A nested well composed of three (3) individual 2-inch diameter casing and screen assemblies will be constructed in the completed rotary borehole. The individual casing and screen assembly details including screen and casing lengths and depths within the nested monitoring wells shall be designated by the Engineer based upon formation sampling from the sonic boring and geophysical testing results.

B. The individual casing and screen assemblies in the nested well are anticipated to each include 20 feet of 2-inch diameter machine slotted PVC screens with 0.020-slot openings in accordance with Section 28 of these specifications. The screened interval in each individual well will be joined at the bottom to a silt trap tail pipe and end cap assembly not more than 5 feet long. The screen intervals will be joined at the top to blank casing extending to ground surface. The blank casing and the silt trap shall both be nominally 2 inches in diameter and conform to Section 27 of these specifications.

C. The screened intervals are as shown on the Drawings. Final screen placement depths shall be designated by the Engineer. The casing and screen assemblies will be placed in the borehole so as to maintain minimum filter pack and annular seal thicknesses in accordance with Section 29 and Section 30 of these specifications. The Contractor may elect to use casing centralizers to maintain the annular space requirements.

D. Annular filter pack will be placed in the boring around each individual discrete screened zone in accordance with Section 29 of these specifications. Annular filter pack shall be placed as shown in the Drawings. Final filter pack placement depths shall be designated by the Engineer.

E. The annular space in the interval between the filter packs and above the upper filter pack shall be placed as shown on the Drawings. Final filter pack placement depths shall be designated by the Engineer.

3.06 UTILITIES LOCATING

A. Locate existing utilities prior to drilling. See Section 15.02.D.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The Contractor will arrange and contract for conducting borehole geophysical testing after the direct or reverse rotary borehole has been drilled to total depth. The geophysical work performed under this section must be overseen and approved by an appropriately licensed professional. The geophysical contractor and calibrated logging tools will be approved by the District's Representative in advance of the testing. Geophysical testing in the borehole shall include the following logs:

1. Resistivity (including a short- and long-normal log)
2. Guard
3. Gamma Ray
4. Spontaneous Potential (SP)
5. Single Point Resistance, and
6. Temperature

1.02 SUBMITTALS

A. Not Required

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXECUTION

A. The Contractor shall assist the geophysical contractor as required in conducting the geophysical testing. The Contractor shall provide the Engineer with a minimum of 2 working days advance notice of the anticipated time of completion of drilling of the direct or reverse rotary borehole to enable appropriate representation to be present for geophysical testing. Final total depth will be determined in the field by the District's Representative.

B. Upon drilling the borehole to the total depth as directed by the District's Representative, borehole fluid circulation shall continue until all drill cuttings have been removed from the borehole, the drilling fluid in the hole is uniform, and the geophysical equipment is on location. The drill pipe shall be removed from the hole and the Contractor shall remain on site, to assist the geophysical contractor as required, until geophysical logging is complete.

C. If the geophysical logging tools cannot be lowered to total depth drilled in any borehole due to hole conditions, the Contractor may be required to circulate the fluids and clean out the hole. Failure to successfully complete geophysical logging to the total drilled depth in any borehole will constitute a failed borehole, requiring the Contractor to begin drilling again.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for installation of permanent blank well casing in accordance with these specifications. Selection of any required temporary casing used only for construction is left to the Contractor. Permanent well casings in all wells shall be continuous and watertight from top to bottom of the casing except for well screens.

B. No glues, solvents, or other adhesives of any kind may be used in any part of the well construction. Threaded casing connections are preferred.

1.02 SUBMITTALS

A. PVC casing pipe and joints

PART 2 PRODUCTS

2.01 CASING SELECTION

A. Material: All casings in all monitoring wells shall be Schedule 80 poly vinyl chloride (PVC) well casing. All Schedule 80 PVC well casing material shall be new and manufactured in the United States and conforming to ASTM Standard 480-76. PVC well casing will be made of virgin plastic produced by the original compounder and shall contain PVC homopolymer and such additives as needed to provide the required processing and toughness characteristics. The Contractor shall submit copies of the casing specification documentation from the manufacturer to the Engineer for approval before delivering casing to any and all individual well site. Unless approved otherwise by the Engineer and except for end pieces, all sections of casing shall be a minimum length of five (5) feet.

B. Diameter: All permanent Schedule 80 PVC casing shall have a nominal pipe size diameter as specified in the site specific technical specification for each individual monitoring well. Schedule 80 PVC casing must be nominal 2-inch as specified in Sections 24 and 25.

C. Thickness: Schedule 80 PVC

D. Length: The finished length of individual well casings in the completed nested monitoring well shall be as shown on Drawings. Final length of each individual well casing in each nested monitoring well will be determined by the Engineer, based on data gathered during drilling. The Contractor shall furnish all necessary material and equipment and perform all labor to provide custom lengths of casing.

E. Joints: No glues, solvents, or other adhesives of any kind may be used in any part of the well construction. Threaded casing connections are preferred. Casing joints shall be watertight, flush inside and outside, and shall be appropriate for the material used so that the resulting joint shall have the same structural integrity as the casing itself. Unless approved otherwise by the Engineer, all casing joints shall be made in accordance with AWWA A100-06. The Contractor shall provide all necessary material and equipment and perform all labor to make joints in custom lengths of casing.

PART 3 EXECUTION

3.01 INSTALLATION

A. Unless directed otherwise by the Engineer, the method of well casing installation in each individual monitoring well shall be at the option of the Contractor, provided installation meets the requirements of Section 31 – Plumbness and Alignment and that the installation process does not alter the shape, size, configuration, or strength of the casing specified herein.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for installation of well screens in the individual wells in each nested monitoring well described in site specific technical specifications in later sections of these specifications.

B. No glues, solvents, or other adhesives of any kind may be used in any part of the well construction. Threaded casing connections are preferred.

1.02 SUBMITTALS

A. Screen product information and specification.

B. Screen joint details.

C. Centralizer if needed.

PART 2 PRODUCTS

2.01 SCREEN SELECTION

A. Construction: All well screens in all individual wells in the nested monitoring wells shall be of the machine slotted PVC design. The machine slotted well screens shall have a sufficient open area such that the average screen entrance velocity does not exceed six (6) feet per minute. Placement of screens in each nested monitoring the test well will be determined by the Engineer based on data gathered during drilling, sample analysis, and geophysical logging.

B. Material: All machine slotted Sch 80 PVC well screens shall be new and made of virgin plastic produced by the original compounder. Screens shall contain PVC homopolymer and such additives as needed to provide the required processing and toughness characteristics. Unless approved otherwise by the Engineer and except for end pieces, all sections of screen shall be a minimum length of five (5) feet.

C. Diameter: All well screens shall have a nominal pipe size diameter as specified in the site specific technical specification for each individual monitoring well. The inside diameter of all screen sections shall match the inside diameter of all blank casing sections described in Section 027. Well screen sections must be nominal 2-inch ID as specified in Sections 24 and 25.

D. Strength: All well screens shall have sufficient strength to withstand anticipated formation and hydrostatic pressures imposed on the screen during installation, well development, and use. The Contractor shall submit screen strength specifications, including collapse and tensile strength, as well as supporting drawings and data to the District for approval.

E. Screen Aperture Size: The anticipated well screen aperture size for all of the screens in all of the nested monitoring wells is anticipated to be 0.020 inches (No. 20 Slot). The Contractor shall submit copies of the screen specification documentation from the manufacturer detailing screen aperture size and construction techniques to the District for approval before delivering any screen sections to any of the monitoring well sites. Final selection of aperture size may be amended as determined by the Engineer based on formation samples.

F. Length: As shown on the Drawings. Final discrete screened zones and overall total screen lengths in each individual well within the nested monitoring wells shall be designated by the Engineer based upon formation sampling and geophysical testing. The screens shall be supplied in section lengths accommodating final design by the Engineer following exploratory borehole drilling. The Contractor shall furnish all necessary material and equipment and perform all labor to provide custom lengths of screen.

G. Termination: The top each screen section shall be connected directly to blank casing and the bottom of each screen section shall be connected directly to a tail pipe silt trap and end cap assembly no more than five feet in length.

H. Selection Period: The Engineer shall be allowed 1 working day grace period following the completion of drilling to select the intervals, length, and corresponding aperture of the screens for the well. The selection period shall begin after geophysical logging is completed and formation samples are accepted by the Engineer. If other work is being performed after acceptance of the formation samples, the selection period shall not begin until the day following completion of said other work. The selection period shall end when the Contractor is notified by the Engineer of the selected aperture size and length of the screen. Notification for the purpose of ending this selection period shall be conducted verbally either in person or by telephone and confirmed on the same date in writing via email or facsimile.

2.02 JOINTS

No glues, solvents, or other adhesives of any kind may be used in any part of the well construction. Threaded casing connections are preferred. Joints shall be appropriate for the material used so that the resulting joint shall have the same structural integrity as the casing itself. The screen joints shall be made in accordance to the manufacturer's specifications and shall allow connections to blank casing, riser casing, and tail pipe. All joints should be water-tight and flush inside and outside. Unless approved otherwise by the Engineer, all casing joints shall be made in accordance with AWWA A100-06. The Contractor shall provide all necessary material and equipment and perform all labor to make joints in custom lengths of casing. Wherever possible, elastomeric gaskets used for threaded casing joints should not be composed of Viton or other materials containing perfluorinated compounds.

A. Screen to screen: Joints between screen sections shall be mechanical and shall be straight, sand tight, and have the same structural integrity as the screen itself. Joining methods recommended by the screen manufacturer shall be employed.

B. Joints between the screen and end fittings shall be in accordance with screen-to-screen joint requirements specified herein.

C. Joints between screen sections and casing shall be in accordance with screen-to-screen joint requirements specified herein.

PART 3 EXECUTION

3.01 INSTALLATION

A. All well screens shall be placed into each borehole as a unit. Centralizer use and placement will be at the option of the Contractor, subject to approval by the Engineer prior to commencement of work.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for installation of artificial filter (sand) packs in all monitoring wells to be constructed as part of these technical specifications.

B. IN THE EVENT OF A CONFLICT BETWEEN THESE SPECIFICATIONS AND THE DISTRICT WELL ORDINANCE 90-1 OR THE DISTRICT WELL STANDARDS, THE DISTRICT WELL ORDINANCE 90-1 AND THE DISTRICT WELL STANDARDS WILL TAKE PRECEDENCE.

1.02 SUBMITTALS

The acceptability of artificial filter pack material shall be determined based upon certified laboratory test results and service records for the source of the material. Prior to delivery to each well site, the Contractor shall submit the following for approval.

A. Source of filter pack material.

B. Certified laboratory test results demonstrating that the filter pack material meets the material and gradation criteria specified herein.

C. A sample of the material of sufficient quantity to conduct tests to independently determine the properties of the filter pack material.

D. Invoice amounts for filter pack material delivered to the site.

PART 2 PRODUCTS

2.01 FILTER PACK SELECTION

A. Material: All filter pack material shall be washed and free of shale, carbonate, mica, clay, dirt, loam, organic impurities, and other deleterious material of any kind. The material shall contain no iron or manganese in a form or quantity that will adversely affect the water quality from samples collected from any of the wells. The filter pack material shall be obtained from an approved source and shall consist of hard, rounded particles with an average specific gravity of not less than 2.5. Not more than one (1) percent by weight of the material shall have a specific gravity of 2.25 or less. The material shall contain not more than two (2) percent by weight of thin, flat or elongated pieces (pieces in which the largest dimension exceeds the smallest dimension multiplied by three). Not more than five (5) percent of the material shall be soluble in hydrochloric acid.

B. Gradation: The filter pack material will be equivalent to Colorado Silica Sand 20/40 pack in accordance with AWWA Nos. A100 and B100 specifications.

However, the final selection of filter pack material will be made based upon drilling results. Gradation requirements are as follows.

U.S. Standard Sieve Size	Percent Retained
No.16	0 to 1
No.20	0 to 1
No.25	0 to 10
No.30	28 to 57
No.35	30 to 40
No.40	15 to 27
No.45	5 to 10

C. Filter Pack to Formation Ratio: The filter pack to formation material ratio at the 70th percentile shall fall within the 4:1 to 10:1 range depending upon formation material uniformity characteristics.

D. Uniformity Coefficient: The uniformity coefficient of the filter pack material shall not exceed 2.5.

E. Thickness: The annular thickness of the filter pack between all well screens and casings in monitoring wells shall be a minimum of one (1) inch. In addition, there shall be a minimum of two (2) inches of filter pack between any casing or screen and the borehole.

F. Length: The final length of the filter pack shall be determined by the Engineer following drilling and geophysical logging in each monitoring well location. In general, filter pack shall be placed across from each of the screened intervals in each nested monitoring well, and shall extend from the bottom of each individual well casing in the nested well up to the seal above that individual well screen.

G. Selection Period: The Engineer shall be allowed 1 working day grace period to designate the filter pack gradation for each monitoring well. The grace periods will coincide with the grace periods described in Section 28 – Well Screen. Unless the Contractor is performing other work resulting from the requirements of this contract, the selection period for each well shall begin after geophysical logging and formation samples for that well are accepted by the Engineer. If other work is being performed after acceptance of the formation samples, the selection period shall not begin until the day following completion of said other work. The selection period shall end when the Contractor is notified by the Engineer of the requirements for the artificial filter pack. Notification for the purpose of ending this selection period shall be conducted verbally either in person or by telephone.

PART 3 EXECUTION

3.01 DELIVERY AND STORAGE

A. The material for the filter pack shall be delivered to each well site upon approval. The material may be delivered in bags or in bulk. Material delivered in bags shall be protected from weather until installed. Materials delivered in bulk shall be stored on a surface covered with a 2-mil thick plastic sheet or equivalent and will be sheltered from weather or contamination at all times prior to installation. Material for the filter pack that comes in contact with the ground or other contaminated material shall not be used, and all materials shall be protected from contamination until installation.

3.02 INSTALLATION

A. The material shall be placed to ensure continuity of the filter pack without bridging, voids, or segregation. Filter pack materials shall not be installed by freefall; **tremie pipe shall be used**.

The well screen used in conjunction with an artificial filter pack shall be in accordance with Section 28 – Well Screen.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for sealing the annular space between individual discrete screened zones and above the uppermost screened zone in each well to provide appropriate and adequate hydraulic seals in accordance with these specifications. Grouting consists of sealing by filling the annular space between the well casing and the borehole between sand zones and above the uppermost sand zone with acceptable impervious material. Sealing of each interval between sand and screen sections and above the uppermost sand pack shall occur immediately following completion of sand pack installation.

B. Well inspection scheduling

1. Upon receipt of a valid District well permit, contractor may schedule a well inspection. To schedule a well inspection call the district's Well Ordinance Program Hotline at (408) 630-2660. Contractor must call to be added to the daily schedule at least **24 hours before** the pour of the annular seal or grouting of an exploratory boring or for well to be destroyed.

2. On the day of the inspection, call the Well Ordinance Program Hotline (408) 630-2660, at least **two hours before** the pour of the well seal.

3. Well inspection details are available at: http://www.valleywater.org/Programs/WellPermitsInspections.aspx

C. IN THE EVENT OF A CONFLICT BETWEEN THESE SPECIFICATIONS AND THE DISTRICT WELL ORDINANCE 90-1 OR THE DISTRICT WELL STANDARDS, THE DISTRICT WELL ORDINANCE 90-1 AND THE DISTRICT WELL STANDARDS WILL TAKE PRECEDENCE.

1.02 SUBMITTALS

A. Sealing materials

PART 2 PRODUCTS

2.01 SEALING REQUIREMENTS

A. Sealing will be required in the annular space of each well in the interval between screen/sand pack zones and above the uppermost screen/sand pack, and in all exploratory boreholes that will not be completed as monitoring wells. All seals shall be composed of materials and placed so as to form a seal that will prevent vertical migration of water or other fluids from ground surface or between screened intervals.

B. All annular well seals shall be a minimum of one (1) inch thick between casings and two (2) inches thick between casings and the borehole wall, unless otherwise approved by the District. Seal thickness refers to the horizontal distance between individual casings and one another in a nested well and between each casing and the borehole wall. All seals in all wells shall begin a minimum of three (3) feet above the top of each discrete screened interval and continue to the bottom of the next shallowest sand zone or the ground surface. Seals shall not be allowed to migrate into the artificial filter pack.

C. Seals in exploratory boreholes that are not completed as monitoring wells shall fill the entire borehole from total drilled depth to ground surface. Seals in exploratory boreholes will conform to the sanitary seal requirements in this Section**.**

D. Materials and placement methods for all seals must be presented to the Engineer for review prior to use.

2.02 SEALS BETWEEN SCREEN ZONES

A. Sealing Requirements: Seals shall be placed in the annular space between every discrete screen and sand pack zone in each nested well. All seals between screen/sand pack zones shall be a minimum of one (1) inch thick between casings and two (2) inches thick between casings and the borehole wall, unless otherwise approved by the District. Seals shall be placed in each well so as to completely fill the space between nested well casings and between the borehole wall and the casings. Casing centralizers may be used to maintain the inter-casing and borehole-to-casing horizontal space requirements. All seals between screen/gravel pack zones in all wells shall begin a minimum of three (3) feet above the top of each discrete screened interval and continue to the bottom of the next shallowest sand zone or the ground surface.

B. Materials: Sealing material for seals between screen/sand pack zones in each well shall consist of swelling bentonite clay. Bentonite clay products used for sealing material must be specifically prepared for such use. Bentonite used for annular seals shall be commercially prepared chipped, plugged, or pelletized sodium montmorillonite clay.

1. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

2. Used drilling mud and/or cuttings from drilling shall not be used in sealing material.

3. Bentonite chips will be used as the sealing material so long as the seal is above the groundwater surface.

4. Time-release coated bentonite pellets shall be used for all between-screen zone seal intervals that are below the top of the groundwater surface.

C. Length: As shown on the Drawings. The final length of the seals between filter pack zones shall be determined by the Engineer following drilling in each well location.

2.03 SANITARY SEAL

A. Sealing Requirements: A sanitary seal will be placed in each well from ground surface to the top of the uppermost sand pack and from ground surface to total depth in each exploratory borehole. The annular space around the well casing shall be grouted from the ground surface to the top of the uppermost filter pack section. The sanitary seal shall have a minimum thickness of one (1) inch thick between casings and two (2) inches thick between casings and the borehole wall. Sanitary seals in all wells shall be placed to fully fill the annular space between casings in the nested wells and between casings and the borehole wall. Sanitary seals shall not be allowed to migrate into artificial filter packs. Casing spacers or centralizers shall be installed in the cement seal interval with a vertical spacing of not more than 10 feet to maintain the inter-casing and borehole-to-casing annular space requirements.

B. Material: Sealing material shall consist of neat cement in conformance with the following:

1. Cuttings from drilling shall not be used as sealing material.
2. Neat cement shall consist of a mixture of ASTM C150 Type II Portland cement and water in the ratio of 0.67 cubic feet (5 gallons) of water per 94 pound sack of cement.
3. Mix water: potable.
4. Cement: ASTM C150 Type II.
5. Accelerators, retardants, bentonite, and other additives shall not be used without prior approval by the Engineer. If approved, bentonite may be added up to six (6) percent by weight. The maximum slump shall be four (4) inches
6. Neat cements seal materials shall not be allowed to migrate into the artificial filter pack. The Contractor shall install a bentonite transitional seal between the filter pack and neat cement to control cement migration. The materials and placement of a transitional seal must be presented to the Engineer for review prior to placement.

C. Length: The final length of the sanitary seal in each well and exploratory borehole shall be determined by the Engineer following drilling in each well. In general, sanitary seals shall be placed above the uppermost screen/sand pack interval and extend to ground surface and in the entire drilled depth of each exploratory borehole. Sanitary seal lengths will be estimated in site specific technical specifications developed for each individual well and exploratory borehole site.

PART 3 EXECUTION

3.01 PLACEMENT

A. All sealing material shall be installed in the presence of the Engineer and the District's Well Inspector. The Contractor shall notify the Engineer and the District's Well Inspector a minimum of 1 working day in advance of planned sealing material placement.

B. All seals shall be placed using a tremie pipe starting at the bottom of the borehole or section and working up. The installation of each seal zone is to be carried out in one continuous operation from the bottom of the interval to be sealed to its top (the ground surface in the case of the sanitary seal) and that the installation conforms to the requirements specified herein. Sealing material shall be placed by methods that prevent freefall, bridging, or dilation. Annular sealing materials shall not be installed by freefall unless approved by the Engineer prior to placement.

C. All loose cuttings and any other obstructions shall be removed from the annular space before placement of sealing material.

D. All seals between screen zones shall be placed in a manner so as to prevent bridging or gaps in the seal. The Contractor will be responsible for implementing seal placement methodology that ensures no bridging or gaps will occur. Bentonite chips used in seals above the top the groundwater surface will be hydrated following placement. One gallon of water should be added to every two pounds of bentonite chips. All water used for the hydration of bentonite chips shall be equivalent in quality to potable water.

E. In accordance with Santa Clara Valley Water District Well Ordinance requirements, the Contractor will notify the District Well's Unit and the Engineer to allow for inspection during surface seal placement. Upon installation of the sanitary sealing material and unless approved otherwise by the Engineer, no further work shall be completed on the well until the grout has set a minimum of 72 hours.

3.02 MATERIAL HANDLING

A. Contractor shall take preventive steps to minimize generation of hazardous or irritating dust while handling bentonite products.

3.03 TESTING

A. Verification of proper sealing material placement in each well shall be made by the Contractor at the request of the Engineer. Testing and verification shall demonstrate that the volume of sealing material placed in the annular space equals or exceeds the annulus volume.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Each completed casing in the nested monitoring wells shall be sufficiently plumb and straight so that there will be no interference with installation, alignment, or operation of any monitoring or testing equipment and all associated appurtenances. The individual casings in each nested monitoring well shall be constructed and all casings and liners set round, plumb, and true to line as defined herein. If requested by the Engineer, the Contractor shall demonstrate that the work is in compliance with the requirements set forth herein by conducting a plumbness and alignment test. The Contractor shall furnish all labor, tools and equipment and perform the test or tests described herein.

B. In the event the plumbness or alignment tests fail to meet the tolerances prescribed herein, the plumbness and alignment of a casing in a nested monitoring well shall be corrected at the Contractor’s expense. Should the Contractor fail to correct the faulty plumbness and alignment, the Engineer may refuse to accept the entire nested monitoring well and shall require the well to be destroyed and replaced at the Contractor’s expense.

1.02 PAYMENTS

A. No separate or additional payment shall be provided for the plumbness and alignment testing specified herein. Payment therefore shall be included in the various bid items of work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 METHODS

A. Plumbness: The test for plumbness at each individual casing of each nested monitoring well shall be made with an acceptable plummet (plumb bob) arrangement. The plummet shall be constructed with either a tripod or drill rig frame assembly. The apex of the assembly shall be stationary with a recommended minimum height of 10 feet above the hole. The plumb ring or plunger shall be heavy enough to keep the plumb line taut and shall consist of a rigid spindle with round plates at both ends. The outer diameter of the end plates shall be one-half (1/2) inch smaller than the inside diameter of that part of the casing or hole being tested. The distance between end plates shall be approximately 1.25 times the inside diameter of that part of the casing or hole being tested.

B. Alignment: Alignment shall be tested by lowering a section of pipe or dummy to a depth equal to the total depth of each individual casing in each nested monitoring well, or a depth determined by the Engineer. The section of pipe or dummy shall have a length of 40 feet and an outside diameter of not more than one-half (1/2) inch smaller than the inside diameter of that part of the casing or hole being tested.

3.02 TOLERANCES

A. Plumbness: Plumbness shall be determined at depth intervals of 10 feet or more frequently when approaching the allowable maximum in all individual casings of each nested monitoring well. The test for plumbness shall be determined by calculating the drift at each interval. The drift is calculated as the product of the deflection and the distance from the plunger to the apex, divided by the depth of the plunger below the top of the hole. The deflection is the measured horizontal deflection of the plumb line from center of the top of the casing. The maximum allowable drift of the well from the vertical shall not exceed two-thirds (2/3) of the smallest inside diameter of that part of the well being tested per 100 feet of depth.

B. Alignment: The test for alignment shall be satisfactory upon demonstrating that the specified section of pipe or dummy moves freely throughout the tested interval in each individual casing in all nested monitoring wells.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all necessary pumps, surge blocks, jets, bailers, air equipment (compressors, hoses, valves, fittings), measurement equipment, other material, and other equipment and performing all labor for well development at each completed monitoring well in accordance with these specifications. Each individual monitoring well shall be developed by repeated combinations of swabbing (or surging), air jetting (or lifting) and by pumping until all drilling disturbance is removed unless other methods are deemed necessary. Development shall be completed either with the drilling rig or with alternative equipment.

B. Proper well development is critical to the usefulness of the wells. The well development standard is for the wells to quickly produce water with 5 NTU or less when pumping at up to 5 gpm after sitting for 24 hours after development is completed. The contractor must plan on spending sufficient time on well development to meet this standard. Generally, it will take at least two (2) full days to develop each well to meet the standard. Water pumped from a properly developed monitoring well should clear quickly and completely.

1.02 SUBMITTALS

A. Not Required

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DEVELOPMENT METHODS

A. Surging: Initial development shall include surging each individual monitoring well. Surging shall be conducted with either a solid or valved surge block.

1. Surging shall be conducted Using at least a 5 foot stoke lengths
2. Fines drawn into the well shall be measured and removed periodically before such accumulation reaches five (5) percent of the screen length.
3. Surging or swabbing in completed monitoring wells shall continue until the fines entering the well are decreased to the turbidity standard of 5 NTU. After surging, each well shall be bailed or pumped clean of all mud, sand, and sediment.

B. Air Lift: Air lift development may be done by the single pipe air pumping system using the casing or a separate drop pipe as the eductor line. The compressors, air lines, hoses, and fittings shall be of adequate size to pump each well by airlift principle to the maximum rate of the well production with a minimum of 5 gpm.

1. During development, the Contractor shall initially pump the well with air until improvement in turbidity is no longer apparent. The Contractor shall then shut off the air and allow the water in the well to return to static conditions. The Contractor shall then reopen the valve and reintroduce air into the well until water is brought to the surface by the air lift method, at which time the Contractor will close the air valve and allow water to drop back down the well and return to static condition. The Contractor shall repeat this lifting and dropping of the column of water until the water in the well becomes turbid at which time the Contractor will continuously lift water from the well with air until it again yields little to no improvement in turbidity. The Contractor shall repeat the above operations until the well runs reasonably clear after it is surged and backwashed as described above.

2. Air lifting following surging shall be repeated until the fines entering the well are decreased to approximately 25 NTU with air lift. The final turbidity standard of 5 NTU need not be achieved using the airlift method but it must be achieved and demonstrated using an electric mini-submersible with a pumping rate of between 3 and 5 gpm .

3. Air lifting may be performed in conjunction with surging or swabbing. If airlifting is performed in combination with surging or swabbing, then the combined actions in each well shall be continued until the fines produced from the well are decreased to the point where the turbidity standard of 5 NTU can be achieved.

4. After air lifting, the fines that have accumulated in the tail pipe of the well shall be measured and bailed or pumped clean of all accumulated mud, sand, and sediment.

5. Air used for air lifting shall be oil free.

C. Overpumping: As an n alternative to air lifting or combined air lifting/surging process, development in each well may include un-interrupted overpumping conducted with a pump capable of pumping at rates up to 20 gpm against the system total dynamic head. The pumping shall be carried out in multiple steps with no check valve or foot valve present. The multiple steps shall include pumping rates ranging between 4 and 20 gpm against the system total dynamic head. Overpumping in each monitoring well should be conducted until fines produced from the well are decreased to the turbidity standard of 5 NTU..

D. Other Development Methods: If approved by the Engineer, other effective well development methods proposed by the Contractor may be conducted for purposes of well development. Detailed descriptions of proposed alternative development methods shall be submitted to the District in writing for approval. The Engineer shall be allowed 1 working day grace period to consider alternative development methods prior to their implementation. The grace period shall begin upon the Contractor’s written submission the proposed alternative method. The grace period shall end on the day the Contractor is notified by the Engineer of the decision regarding alternative development methods. Notification for the purpose of ending the grace period shall be conducted verbally.

1. Separate descriptions, review, and approval must be obtained for all proposed alternative well development methods in all individual wells. Prior approval of a well development method in connection with development of an individual monitoring well does not equate to approval for use of that method at any subsequently constructed monitoring wells.

3.02 INSTALLATION OF PUMP FOR DEVELOPMENT

A. The Contractor shall furnish, install, operate, and remove an acceptable pump for developing the well. The pump and prime mover shall be a variable-speed type, so that the discharge may be varied from 4 to 20 gpm. The test pump shall have its intake set at a sufficient depth to conduct the well development specified herein. The pumping unit shall be complete with an ample power source, controls, and appurtenances. There shall not be any foot valves, check valves, or other one-way flow devices on the pump, drop pipe, or discharge piping and the pump bowls or impellers shall be capable of spinning backward to facilitate surging during development. The Contractor shall furnish and install discharge piping for the pumping unit of sufficient size and length to conduct water to a suitable point as specified herein in Section 38**.**

B. Measuring Pump Discharge Rate: An accurate means for measuring the discharge rate of the pump shall be provided, installed, and maintained by the Contractor. The method of flow measurement may consist of a flow meter (preferred), or filling a reservoir of easily verified capacity to accurately measuring the flow within an accuracy of fifteen (15) percent, as determined by the Engineer, throughout the 4 to 20 gpm range. The method of measuring discharge rate shall be approved by the Engineer prior to installing the pump and discharge line.

3.03 MEASUREMENTS DURING DEVELOPMENT

A. The Contractor shall provide all equipment and labor for the measurement of the following operating parameters during development of each monitoring well:

1. Discharge rate,

2. Static and pumping water levels (with a standard manually operated water level measurement device),

3. Turbidity of the discharge water in nephelometric turbidity units (NTU), and

All measurements of the sand content shall be conducted using an Imhoff Cone or Rossum centrifugal sand sampler provided by the Contractor.

3.04 STANDARDS FOR COMPLETION OF WELL DEVELOPMENT

A. Well development at each individual casing within each monitoring well shall be considered complete upon satisfaction of the following conditions 24 hours after the completion of development activities. This final measurement shall be performed using a submersible pump and not with air lift.

1. The sand content of the discharge water shall average not more than five (5) milligrams per liter (mg/l) for a complete pumping cycle of 30 minutes duration when pumping at the designated capacity.

2. The turbidity of the discharge water is at or below 5 NTU when pumping at a rate of up to 5 gpm for at least 3 well volumes.

Upon completion of development, the Contractor shall remove all sand, gravel, and other debris accumulated in the bottom of each individual casing in each monitoring well. This is best accomplished with compressed air and a long airline outfitted with a metal pipe on the end.

3.05 DISCHARGE WATER

A. Discharge water shall be disposed of in accordance with Section 38 and all site specific requirements included in site specific technical specifications contained in following sections.

3.06 RECORDS

A. Complete records of all development work at each completed monitoring well shall be maintained by the Contractor and submitted to the District. These records shall include:

1. Quantity and description of any material placed into the well.

2. Methods of measurement.

3. Duration of each operation, including starting and ending times for each development cycle on each screened interval.

4. Sand content as a function of production rate and time.

5. Turbidity measurements

6. All other pertinent information relating to conditions encountered during development.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. The work described in this section consists of furnishing all material and equipment and performing all labor for well head completion at all completed monitoring wells.

1.02 SUBMITTALS

A. Product information and shop drawing for traffic rated vault

B. Product information and shop drawing for traffic rated hatch cover

C. Drain rock description and gradation

D. Drainage Fabric

PART 2 PRODUCTS

2.01 TRAFFIC RATED VAULT BOX

A. Designed to conform to ASTM C857 and C858.

B. Composed of a bottomless box of sleeve design and easily assembled by two people

C. Have rigid, flat, and stable top and bottom surface.

D. Cement: ASTM C150

E. Coarse and fine aggregates: ASTM C33

F. Preparation of Concrete: ASTM A94 and ACI 304

G. Minimum 28 day compressive strength: 6,000 psi

H. Rebar: Deformed bar per ASTM A615

I. Provide Concast Inc. model FHR Traffic Rated handhole (purchased without cover); or equal by other manufacturers.

2.02 TRAFFIC RATED HATCH COVER

A. Load rating: AASHTO H-20 wheel load with a maximum deflection of 1/150th of the span. Manufacturer to provide structural calculations stamped by a registered professional engineer upon request.

B. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.

C. Operation of the cover shall not be affected by temperature.

D. Entire door, including all hardware components, shall be highly corrosion resistant.

E. Cover: diamond pattern.

F. Drainage: 1-1/2” drain coupling

G. Lifting mechanisms: Manufacturer shall provide the required number and size of compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and to act as a check in retarding downward motion of the cover when closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly.

H. Finishes: Factory finish shall be mill finish aluminum with bituminous coating applied to the exterior of the frame.

I. Cover shall be labeled “SCVWD” with 2” tall bead welded text from the factory.

J. Provide Bilco J-1ALH20 aluminum hatch; or equal by other manufacturer.

K. **Furnish two extra removable exterior turn/lift handles to District for backup**.

2.03 DRAIN ROCK

A. Drain rock shall be Class 1 Type A permeable material per Caltrans Standard Specification Section 68.

2.04 GEOTEXTILE FILTER FABRIC

A. Provide Tencate Mirafi 140 NC, Hanes Terratex SD, Skaps GT140, Thrace Linq 130EX, Propex Geotex 451/457, or equal by others.

PART 3 EXECUTION

3.01 CASING CAPPING

A. Upon completion of each monitoring well, the Contractor shall install suitable lockable and accessible caps or plugs into the top of each individual casing to prevent tampering and prevent foreign objects and surface contaminants from entering the well.

3.02 CASING HEIGHT

A. Unless directed otherwise by the Engineer, the well casing shall be no less than ten (10) inches below the top of the vault in each well.

B. The ground surface surrounding the well casing shall be graded and sloped away from the well to prevent surface runoff from entering the completed well.

3.03 TRAFFIC RATED VAULT BOX

A. When the bottom of the excavation is soft, or where in the opinion of the Engineer, unsatisfactory foundation conditions exist, the Contractor shall overexcavate to a depth acceptable to the Engineer to ensure a proper foundation. The excavation can then be brought back up to the prescribed grade with thoroughly compacted granular material.

B. Follow manufacturer's installation guidelines unless noted otherwise in Plans or Specs.

3.04 TRAFFIC RATED HATCH COVER

A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.

1. Test units for proper function and adjust until proper operation is achieved.

2. Repair finishes damaged during installation.

3. Restore finishes so no evidence remains of corrective work.

C. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

3.05 DRAIN ROCK

A. Place drain rock in horizontal layers no thicker than 8".

B. Thoroughly consolidate permeable material along with and by the same methods specified in Caltrans Standard Specifications Section 19-3. Ponding and jetting of drain rocks is not acceptable.

3.06 GEOTEXTILE FILTER FABRIC

A. Remove loose or extraneous material and sharp objects immediately before placing filter fabric.

B. The subgrade to receive the filter fabric must comply with the compaction and elevation tolerance specified.

C. Handle and place filter fabric under the manufacturer's instructions.

D. Align and place filter fabric without wrinkles.

E. Overlap adjacent roll ends of filter fabric at least 18 inches. The preceding roll must overlap the following roll in the direction that the drain rock is being spread.

F. Completely replace torn or punctured sections damaged during placement or repair by placing a piece of filter fabric that is large enough to cover the damaged area and comply with the overlap specified.

G. Cover filter fabric with the thickness of overlying material shown within 72 hours of placing the fabric.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. At the Engineer’s discretion, any borehole or monitoring well may be destroyed at any time if the borehole or monitoring well does not conform to the requirements of these specifications or the relevant site specific specifications. Upon determination that the borehole or well should be destroyed, the Contractor shall furnish all material and equipment and perform all labor to properly close and destroy the borehole in accordance with Santa Clara Valley Water District requirements and guidelines provided by the California Department of Water Resources (DWR) Bulletin Nos. 74-81 and 74-90, District Well Ordinance 90-1, and as specified herein. The goal of destruction is to restore the hydrogeologic conditions that existed before the hole was drilled.

B. Any partially completed or completed monitoring well shall be considered as requiring destruction if: 1) during or after drilling the Engineer determines the well should be destroyed, or 2) the well fails to conform to these specifications and the Contractor is unable to correct the condition or negotiate a mutually acceptable cost reduction for specification deviations. Upon determination that the well should be destroyed, the Contractor shall furnish all material and equipment and perform all labor to properly destroy the well in accordance with guidelines provided above.

1.02 SUBMITTALS

A. Records

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 METHOD

A. Unless approved otherwise and in addition to other requirements specified in DWR Bulletin Nos. 74-81 and 74-90 and District Well Ordinance 90-1, the entire borehole or well will be filled with neat cement placed from the bottom upward by methods that will avoid segregation or dilution of material. Additional well destruction methods may be required by the District if the borehole or well in question does not meet the requirements for simple filling with neat cement.

3.02 RECORDS

A. The Contractor shall submit to the Engineer complete records of the entire destruction procedure to provide a record that the borehole/well was properly sealed. The records shall include type, depth, and quantity of sealing material; measurements of static water levels; and any changes in the well made during the destruction procedure such as perforating casing.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Furnishing all labor, material, equipment, tools, and services required for the placing, compacting, and striping of asphalt concrete pavement to the lines, grades, and dimensions shown on the Drawings and as specified herein

  1. Also included shall be the repair and resurfacing of existing pavement damaged or removed during construction.

1.02 REFERENCE SPECIFICATIONS

A. Whenever the words "Standard Specifications" are referred to, the reference is to the State of California, Department of Transportation, Standard Specifications (2010).

B. ASTM International (ASTM):

  1. D422 Test Method for Particle-Size Analysis for Soils
  2. D1556 Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
  3. D2027 Specification for Cutback Asphalt (Medium Curing Type)
  4. D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

C. California Department of Transportation (CALTRANS):

  1. California Test 216 Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates
  2. California Test 231 Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates by the Area Concept Utilizing Nuclear Gauges

1.03 SUBMITTALS

A. Work schedule including but not limited to:

  1. Number of days needed for temporary parking lot restriping to change traffic flow pattern
  2. Number of days needed to complete asphalt repairs
  3. Number of days needed to complete parking lot cleaning and application of slurry seal

4. Number of days needed to restripe parking lot to original layout and traffic flow pattern

5. Planned start and completion dates for the work above.

B. Survey of existing parking lot striping shown on plan.

C. Signed verification from each source of supply for each construction material employed on this project indicating that the materials meet the Specification requirements.

D. Mix design for asphalt concrete.

E. Crack filler.

F. Submit manufacturer's certification of the actual volatile organic compound (VOC) content for all pavement paints and bituminous pavement sealers proposed for use on this project meet applicable Bay Area Air Quality Management District (BAAQMD). Submit certification of the actual VOC content for coatings manufactured after 1 September 1987. For coatings manufactured before 1 September 1987, submit VOC content and date of manufacture. VOC content shall be measured in grams per liter by weight of coating as applied excluding water and color added to the tint base.

1.04 QUALITY ASSURANCE

A. Comply with “Standard Specifications” of State of California, Department of Transportation

B. All pavement stripe painting shall be performed by competent and experienced equipment operators and painters using proper equipment, tools, stencils, templates, and shields in a workmanlike manner.

1.05 ADDITIONAL PAVEMENT REQUIREMENTS

A. Contractor hall note that the City of Campbell may, at its discretion, make additional requirements to ensure a high quality work product. In the event such requirements are not addressed in this Specification, Contractor shall be paid on a time and materials basis for additional work required to satisfy City of Campbell’s additional requirements

PART 2 PRODUCTS

2.01 ASPHALT CONCRETE

A. Asphalt concrete with 1/2" Type B aggregate grading conforming to the requirements of Section 39 of the Standard Specifications.

B. Asphalt binder PG 64-10 conforming to the requirements of Section 92 of the Standard Specifications shall be used as the asphalt binder.

C. Liquid asphalt (cutback) MC-800 or SC-800 conforming to the requirements of Section 93 of the Standard Specifications shall be used as the asphalt binder for patching mixes.

2.02 TACK COAT

A. Material for tack coat shall be asphaltic emulsion conforming to Section 94 of the Standard Specifications.

2.03 PRIME COAT OVER AGGREGATE BASE

A. Material for prime coat shall be liquid asphalt SC-250 or MC-250 conforming to the requirements of Section 93 of the Standard Specifications and ASTM D2027.

2.04 SLURRY SEAL

A. Polymer modified asphaltic emulsion, cationic quick setting type, conforming to the requirements of Section 37 and Section 94 of the Standard Specifications. Aggregate shall conform to Type II. Asphalt emulsion shall be 12% to 18% of aggregate weight.

2.05 AGGREGATE BASE

A. Aggregate base shall conform to the applicable requirements of the Standard Specifications Section 26, for Class 2 or 3 aggregate base. The aggregate base shall conform to that specified for the ¾-inch maximum, unless otherwise indicated.

2.06 PARKING STRIPES

A. Parking stripes paint shall be non-reflective Sherwin Williams Series 338-116(W), 338-117(Y) and 338-333(B), or Pervo Paint Company No. 4773-A(W), 4473-4A(Y) and 473-5A(B). Paint shall be stored at the project site in the manufacturer's sealed and labeled containers. Labels shall clearly identify the manufacturer, specification number, batch number, intended use, quantity and contract number.

B. Stencil traffic flow arrows white paint, and disabled parking stalls using stencil with white and blue traffic paint. Yellow traffic paint and thermoplastic tape is prohibited for this job.

2.07 CRACK FILLER

A. Duro-Flex hot applied crack filler or equal.

2.08 TEMPORARY PAVEMENT (COLD MIX)

A. Temporary pavement shall consist of No. 4 sieve maximum aggregate size, graded in accordance with Section 39 of the Standard Specifications. The aggregate shall be blended with 5-8% SC-800 liquid asphalt.

PART 3 EXECUTION

3.01 GENERAL

A. This Specification shall cover newly paved areas as well as existing pavement restoration.

B. Where trenching or other construction activity has resulted in damage to a localized area of pavement, the damaged pavement shall be cut back 6 inches and shall be removed and replaced.

C. Structures such as valve boxes, manhole frames and covers, and electrical vaults shall be adjusted to grade as necessary within paved areas.

3.02 PAVEMENT CUTTING

A. After backfilling and prior to paving, proper tools and equipment shall be used in marking and breaking so that the pavement shall be cut accurately and on neat lines. The asphalt pavement shall be saw cut (using a concrete saw) to a minimum depth equal to or greater than one-half the thickness thereof. The pavement shall be cut back 6 inches on each side of the trench or excavation wall. Any pavement damaged outside these lines shall be re-cut and restored at the expense of the Contractor. Should voids develop under existing pavements during construction, those affected pavements shall be neatly saw cut in straight lines and replaced after the voids have been filled.

B. Construct joints between successive runs vertical and at right angles to the line of the improvement. Exercise care in construction of all joints to ensure that the surface of the pavement is true to grade and cross-section. Lapped joints will not be permitted.

3.03 PLACEMENT OF AGGREGATE BASE

A. Subgrade Preparation: The subgrade shall be watered or dried as required to bring the soil, as close as practicable, to the optimum moisture content for proper compacting and then compacted, as specified, to a relative compaction of not less than 95% in the upper 6 inches. When compaction of the subgrade areas on fill and embankments has been properly obtained, only such additional rolling will be required as necessary to obtain a thoroughly compacted subgrade immediately prior to placing the aggregate base thereon.

B. Aggregate Base Tolerance: The aggregate base shall not be placed before the subgrade is approved by the Engineer. The finished aggregate base shall not vary more than 0.05-foot above, nor 0.10-foot below, the planned grade.

C. Aggregate Base Placing: The aggregate base material shall be spread on the prepared subgrade by means of approved spreading devices subject to approval by the Engineer; the aggregate base material may be dumped in piles upon the subgrade and spread by bulldozing ahead from the dumped material. Each layer shall not exceed 0.50 feet. Segregation of large or fine particles of aggregate shall be avoided, and the material as spread shall be free from pockets of large and fine material. Aggregate base thickness shall match existing but not less than 6 inch.

D. Compaction: The relative compaction of each layer of compacted aggregate base material shall not be less than 95% as determined by California Test 216 or ASTM D1556 (Sand Cone), or California Test 231 or ASTM D2922 (Nuclear method when approved by the Engineer). Compaction shall be in accordance with Section 26-1.03D of the Standard Specifications. Aggregate base, after compaction, shall be watered as provided in Section 17 of the Standard Specifications.

3.04 PRIME COAT APPLICATION

A. Prime Coat: In advance of spreading paving materials, a prime coat of liquid asphalt shall be applied to all base course surface areas to be covered with asphaltic concrete.

1. Preparation of Base Course: Immediately before applying the prime coat, the area to be surfaced shall be cleaned of all loose material by means of hand brooms,

2. Application: Liquid asphalt shall be applied by pressure distributors at a temperature between 125 and 200°F. The Contracting Officer reserves the right to require an adjustment of the temperature of the liquid asphalt at the time of placement. The rate of application shall be between 2/10 and 3/10 gallon per square yard. Excess liquid asphalt, which has failed to penetrate the base, shall be covered with fine sand. All loose sand shall be removed from the treated areas before placing any surfacing material thereon. Liquid asphalt shall not be applied when the atmospheric temperature is below 50°F. The prime coat shall be applied at least 24 hours in advance of paving. Immediately in advance of paving asphalt concrete surfacing, additional prime coats shall be applied, as directed by the Contracting Officer, to areas where the prime coat has been damaged

3.05 TACK COAT APPLICATION

A. Tack Coat: In advance of spreading bituminous material upon an existing bituminous or portland cement concrete surface, a tack coat shall be applied to all areas to be surfaced and to all vertical surfaces of existing pavement, curb, gutters and construction joints in the surfacing against which additional material is to be placed. When two or more lifts of asphaltic concrete are required, a tack coat shall be applied between each lift.

1. Preparation: Immediately before applying a tack coat, the area to be surfaced shall be cleaned of all loose material.

2. Application: The tack coat shall be applied by means of pressure distributors by pressure hand-spray equipment. The rate of application shall be 1/20 gallon per square yard. Emulsified asphalt shall not be applied when the atmospheric temperature is below 40°F. If emulsified

asphalt Type SS-1 is used, it may be diluted with an equal part of water. The rate of application of the dilution shall be such that the rate of application of undiluted emulsion shall be within the tolerances specified.

3.06 PLACEMENT OF ASPHALT CONCRETE

A. Delivery and Spreading: Bituminous mixtures shall be delivered to the roadbed at temperatures specified in the Standard Specifications. Spreading of the mixture shall be in accordance with Section 39 of the Standard Specifications. Paragraph 39-6 does not apply. All loads shall be covered with tarpaulin or other material during transportation. The top layer of asphalt concrete shall not exceed 0.20 feet in compacted thickness. The next lower layer shall not exceed 0.25 feet in compacted thickness, and any lower layers shall not exceed 0.50 feet in compacted thickness.

B. Compaction: Initial or breakdown rolling and the final rolling of the uppermost layer of the asphalt concrete shall be compacted in accordance with Section 39 of the Standard Specifications. Compaction by vehicular traffic shall not be permitted. The Contracting Officer reserves the right to require an adjustment of the temperature of the asphalt concrete at the time of placement.

C. Pavement Thickness: Pavement shall match the existing adjoining pavement in thickness, or as indicated on the Drawings, or as specified, whichever is greater.

D. Joining Pavement: The joints between old and new pavements or between successive days' work shall be carefully made in such manner as to ensure a continuous bond between old and new sections of the course. Edges of existing pavement shall be exposed and cleaned and edges cut to straight, vertical surfaces. All joints shall be painted with a uniform coat of tack coat before the fresh mixture is applied.

E. Protection of Pavement: After final rolling, no vehicular traffic of any kind shall be permitted on the pavement until it has cooled and hardened and in no case less than 6 hours.

3.07 PAVEMENT REPAIR

A. Following removal of sound wall after completion of drilling, perform the following:

1. Inspect parking lot for damage requiring asphalt repair as indicated by new cracking, depressions, scrapes or gouges greater than ½-inch deep, or other damage caused by the drilling and demobilization activities.

2. Prepare a rough sketch plan of the parking lot indicating the locations and areas requiring asphalt repair.

B. Upon approval of repair plan, proceed with asphalt repair and preparation for slurry seal as follows:

1. Coordinate with Engineer and City to schedule partial parking lot closure for repair and re-sealing work. Mobilize changeable electronic sign to

announce partial parking lot closure and post signs seven days in advance of closure, as specified in Items 4 and 5 above.

2. Saw-cut and remove damaged AC by grinding out damaged asphalt to a depth of 2 inches (minimum) and replace with new asphalt. Follow proper hauling and disposal practices to an approved waste site, or use debris boxes provided only by West Valley Collection and Recycling. Compact subbase at removal locations to 95% relative compaction (ASTM D1557) prior to placement of 2 inches of new hot asphalt (or thicker, as needed).

3. Grind out all black out paint and all temporary white striping paint to prepare for slurry seal. None of the paint to be ground out is yellow; therefore, lead chromate and associated hazardous waste management is not anticipated for this job. Vacuum or sweep all grindings immediately after grinding. Ensure parking lot has no unsecured grinding at the end of each workday. Remove all black out and temporary white parking stripes grinding within two consecutive workdays, concurrent with asphalt repair.

4. Clear entire parking lot of all debris using power blowers and fill cracks ¼" and larger with Duro-Flex hot applied crack filler (or equivalent product) as per manufacturer's specifications throughout the parking lot. Make all necessary preparations to make parking lot ready to receive slurry seal.

5. Cover manhole/vault covers and other utilities with plastic or oil resistant construction paper or roofing felt adhered to the surface of the inlet prior to applying slurry seal. Remove once new slurry seal surfacing has sufficiently cured.

3.08 SLURRY SEAL

A. Apply a single coat of slurry seal over the entire parking lot in accordance with the applicable requirements of Section 37 of the Standard Specifications. Tack coat is not required unless the Engineer determines the existing surface is extremely dry and raveled.

3.09 SURVEY EXISTING STRIPING

A. Provide accurate survey of existing parking lot striping. The final pavement restriping shall match the existing striping.

B. Notify the Engineer two days prior to the surveyors arriving on site.

3.10 PAVEMENT MARKINGS

A. Preparation: Immediately before applying the paint, the pavement surface shall be thoroughly cleaned of all dust, dirt, scale, curing compound, oil, grease, or other objectionable matter as directed by the Engineer. Solvent material that will damage the pavement shall not be used as a cleaning agent.

B. Tolerances: Marking and striping shall be within 2 inches of the correct alignment. Dimensions of marking and stripings shall be within ½-inch.

C. Mixing: Mechanical mixers shall be used to mix paint. Prior to applying, the paint shall be mixed a sufficient length of time to thoroughly mix the pigment and vehicle together, and shall be kept thoroughly agitated during its application.

D. Application: Use mechanical means in accordance with the paint manufacturer's recommendations and applicable requirements in Section 84-3.02C of the Standard Specification. Parking space striping shall be 4" thick.

E. Thermoplastic marking shall be extruded. Sprayable thermoplastic material is not allowed.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes sound wall to be installed around well locations required for mitigating noise during well drilling and development.

B. The Contractor shall implement and ensure compliance with all noise control measures and requirements as shown on the Drawings and as specified in these Specifications. Operational noise shall be kept minimized and proper noise arrestors and mufflers shall be utilized. Noise reducing equipment may include, but not be limited to, noise arrestors, mufflers, and a sound wall surrounding the work site.

C. Temporary removal and reinstallation of an existing light pole to accommodate crane operations during sound wall installation.

1.02 REFERENCES

A. American Institute of Steel Construction, Inc. (AISC):

1. Manual of Steel Construction Allowable Stress Design.

B. American Society of Civil Engineers (ASCE):

1. ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.

C. International Conference of Building Officials (ICBO) and State of California:

1. California Building Code 2013 (CBC).

1.03 DESIGN REQUIREMENTS

A. General:

1. Design the sound wall to achieve the sound attenuation required to comply with Article 17.03.01.

2. Design the means for safe and stable sound wall in accordance with local, State, and Federal law and as specified herein.

3. The structural design of the sound wall shall be performed by a professional civil or structural engineer licensed in California.

4. Design steel members in accordance with the California Building Code and the AISC Manual of Steel Design.

B. Wind Criteria:

1. Design wind speed = 110 mph.
2. Occupancy Category: II
3. Importance Factor: 1.00
4. Exposure Category: C

C. Seismic Criteria:

1. Occupancy Category: II
2. Spectral Response Acceleration for 0.2-second period, S_S: 1.952
3. Spectral Response Acceleration for 1-second period, S_1: 0.671
4. Site Coefficient for short periods, F_a: 1.00
5. Site Coefficient for 1-second period: F_v: 1.50
6. Site Class: D
7. Seismic Design Category: D
8. Seismic Importance Factor: 1.00

D. Structural Materials:

1. W- and WT- shapes = ASTM A992, F_y = 50 ksi.
2. M-, S-, and HP-, channels, angles, plates = ASTM A36, F_y = 36 ksi.
3. HSS-: ASTM A500 Grade B, F_y = 46 ksi
4. Steel Pipe: ASTM A53 Type E or S, Grade B, F_y = 35ksi

1.04 SUBMITTALS

A. All submittals shall be in accordance with Section 19.01.

B. Product data and installation instructions for sound wall.

C. Plan and details of sound wall installation.

D. Structural design calculations stamped and signed by civil or structural engineer licensed in California.

E. Certification letter stating that the City of Campbell's Sound Ordinance will be met.

PART 2 PRODUCTS

2.01 SOUND WALL

A. Sound wall shall be a minimum of 24 feet tall but not less than what is required to comply with Article 17.03.01. Noise.

B. Sound Wall shall consist of ENC STC-32 Sound Control Panel System by Behrens and Associates, Inc., or equal.

PART 3 EXECUTION

3.01 INSTALLATION AND REMOVAL

A. Install per the manufacturer's instructions.

B. Crane operators must be certified by the National Commission For the Certification of Crane Operators (NCCCO).

C. Locate existing utilities prior to drilling for sound wall post/piles. See Section 15.02.D.

D. Temporarily remove existing light pole to allow for crane operations during sound wall construction. Install two temporary, adjustable dual head, outdoor rated, 75W LED light fixtures (with color temperature range between 2,500k and 3,000k), at the top of the southwest and southeast corners of the sound wall enclosure. Temporarily relocate the signs on the existing impacted pole to the existing street light to the west. Existing light pole and signs shall be reinstalled to the satisfaction of the Engineer and the City of Campbell after the completion of sound wall removal. Removal and installation shall be coordinated with the Engineer and the City of Campbell. The Contractor shall perform all associated work.

E. Sound wall components shall be removed after well work completion. Voids in the ground created during installation shall be backfilled with sand, controlled density fill, or pressure injected grout. Pavement surface repaired per Section 35 Paving and Surfacing.

F. Provide reflective marking tape, or other such means as acceptable to the District and City, to increase visibility of the sound wall in low/no light conditions.

G. Public information poster boards provided by the District shall be secured on the exterior face of the sound wall at locations directed by the Engineer.

END OF SECTION

DISPOSAL OF DRILLING FLUIDS AND CUTTINGS SECTION 37

PART 1 GENERAL

1.01 GENERAL

A. Drilling fluids and cuttings must be disposed offsite at a state-licensed landfill by the Contractor. The disposal location, methods, and routes for transporting drilling fluids and cuttings from each individual work site will be proposed by the Contractor and approved by the District prior to beginning work. Drilling cuttings and fluids may be required to be staged onsite in temporary mobile containers for drying prior to transportation for disposal.

B. Construction of mud pits will not be allowed at the work site during any phase of drilling or well construction. Any and all circulation for drilling must be contained in mobile pit units.

C. The Contractor will identify suitable locations for drilling fluid and cutting disposal and confirm acceptability with the District

END OF ARTICLE

PART 1 GENERAL

1.01 GENERAL

A. The Contractor shall be responsible for properly disposing of all water resulting from all drilling, construction, and well development operations. The Contractor shall be responsible for ensuring that all discharge water is disposed of in accordance with all applicable local, County, State, and Federal regulations. All permits needed for water discharge to any facility shall be acquired by the Contractor with assistance from the Engineer. Discharge locations for produced water from all drilling, construction, and well development work will be and approved by the District and the City of Campbell prior to any discharge of water for any purpose.

B. Prior to being discharged, the Contractor shall contain all produced water in onsite settling tanks to reduce discharge velocities and remove any solids from the discharge water. The Contractor shall provide enough storage volume to contain all water generated during drilling, well construction, and well development prior to approval of any discharge.

C. In addition, the Contractor shall be responsible during the work to prevent contaminated water, gasoline, oil, solvents, or any other contaminant from impacting local surface water or wetland areas. The Contractor will be required to work with the Engineer to establish fluid discharge containment and discharge protocols at the work site prior to beginning work. In no case will any fluids or other material be discharged anywhere other than the location identified by the Engineer.

D. If the Contractor proposes to dispose of discharge water onsite, it is responsible for obtaining any required approvals from the City of Campbell in advance of the work. The Contractor shall provide the Engineer with copies of any agreement(s) between the Contractor and the City.

E. Discharge water does not include the discharge of drilling fluids. Disposal of drilling fluids shall be conducted in accordance with Section 37 of these Specifications.

1.02 DISCHARGE WATER DURING DEVELOPMENT

A. Unless approved otherwise by the District, discharge water resulting from the “first flush” of development shall be containerized and removed from the site for disposal. The duration and quantity of first flush development water shall be determined by the Engineer. Pending the approval of the Engineer, subsequent development water shall be disposed of in accordance with Paragraph 1.01 of Section.

END OF SECTION

APPENDIX A

Agreement
Payment Bond
Performance Bond
Instructions for Completing SBE Utilization Report
Sample Small/Micro Business Enterprises (SBE) Utilization Report
Escrow Agreement for Security Deposits in Lieu of Retention

THIS PAGE INTENTIONALLY LEFT BLANK

The following is an agreement entered into as of _______ by and between the SANTA CLARA VALLEY WATER DISTRICT, State of California, hereinafter referred to as “District” and ____, hereinafter referred to as “Contractor.”

For the considerations hereinafter specified, Contractor and District agree as follows:

ARTICLE I: Work to Be Done and Documents Forming the Contract

Contractor agrees to do all the work and furnish all materials necessary to construct and complete, in accordance with the Specifications the following work:

JOHN D. MORGAN PARK MONITORING WELLS PROJECT
Project No. 91304001
Contract No. C0622

Said work shall be performed to the satisfaction of the Engineer all in accordance with the Drawings, Specifications, Notice to Bidders, and the Proposal of the Contractor, all of which documents are hereby specially referred to and by such reference made a part of this Contract.

ARTICLE II: Contract Price

District hereby agrees and promises to pay to Contractor the sum of
____ Dollars ($__________).

For the performance of said work; provided, however, that the above mentioned sum is one determined by the Proposal of Contractor as based upon the estimated amount of work to be done, and should there be any variance between the estimated amount of work to be done and the actual amount of work performed, then the final payment price shall be computed on the basis of the unit prices contained in the Proposal of Contractor.

ARTICLE III: Completion of Contract

It is hereby agreed that the work called for under this Contract, in all its parts and requirements, shall be completed before the expiration of 182 calendar days from the First Chargeable Day of the Contract as stated on the Notice to Begin Work unless the time for completion is extended, as allowed by the Specifications.

ARTICLE IV: Bonds Required

This Contract shall have no force or effect whatsoever unless and until Contractor delivers to District a Payment Bond in the sum of
____ Dollars ($__________).

Nor shall such Contract be effective until Contractor also gives a good and sufficient bond in the sum of ____ Dollars ($__________) for the faithful performance of the work to be done under the terms of this Contract.

ARTICLE V: Certification by Contractor

Contractor hereby certifies as follows:

> "I certify that I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract."

ARTICLE VI: Gift Policy Observance

Contractor hereby acknowledges that District policy prohibits the acceptance by District personnel of gifts of any kind from vendors or contractors. Contractor shall honor this policy by not sending or bringing gifts to the District.

IN WITNESS WHEREOF, Contractor and District have caused this Agreement to be subscribed as of the day and year first hereinabove written.

Date Contractor signature affixed:

____

By ______________________________

Title ______________________________
"Contractor"

____
Federal I.D.

SANTA CLARA VALLEY WATER DISTRICT

Date District signature affixed:

By ______________________________
Chair/Board of Directors

____

Payment Bond

BE IT KNOWN BY THESE PRESENTS:

WHEREAS, the Santa Clara Valley Water District (hereinafter called "the Public Entity"), and ____ (hereinafter designated as "Principal") have entered into an agreement for the **JOHN D. MORGAN PARK MONITORING WELLS PROJECT** which said agreement is dated as of ____________________, 20_____; and

WHEREAS, said Principal is required by California Civil Code Sections 9550 and 9554 to furnish a bond in connection with said agreement;

NOW, THEREFORE, we, the Principal and ____, a corporation duly organized under the laws of the State of ___________________, having its principal place of business at __________ in the State of _______, and authorized to do business in the State of California, hereinafter "Surety," are held and firmly bound unto the Public Entity in the penal sum of ____ Dollars ($__________) lawful money of the United States of America for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, Administrators, and successors and assigns, jointly and severally, firmly by these presents.

1. THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal or the Principal's subcontractor fails to pay any of the persons named in Section 9100, or amounts due under the California Unemployment Insurance Code with respect to work or labor performed under the agreement, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal and the Principal's subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety or Sureties will pay for the same, in an amount not exceeding the sum hereinabove specified, and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court. The Principal may require of the Principal's subcontractors a bond to indemnify the Principal for any loss sustained by the Principal because of any default by the Principal's subcontractors under Section 9554 of the California Civil Code.
2. This bond shall inure to the benefit of any of the persons named in Section 9100 of the California Civil Code, so as to give a right of action to such persons or their assigns in any suit brought upon this bond.
3. Surety, for value received, hereby agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the Contract Documents accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the other portions of the Contract Documents.
4. Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety or Sureties above named on the __________ day of ____________________, 20_____.

PRINCIPAL:	**SURETY**:
______________________ Signature	______________________ Signature
______________________ Name	______________________ Name (Seal)
______________________ Title	______________________ Title
______________________ Address	______________________ Address

Performance Bond

BE IT KNOWN BY THESE PRESENTS: That

WHEREAS, the Santa Clara Valley Water District, State of California, has awarded to _______________ ____ (hereinafter designated as “Principal”) a Contract for **JOHN D. MORGAN PARK MONITORING WELLS PROJECT**, and

WHEREAS, said Principal is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract,

NOW, THEREFORE, we, the Principal and ____ as Surety, are held and firmly bound unto the Santa Clara Valley Water District (hereinafter called “District”) in the sum of ____ Dollars ($__________) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above bounden Principal, or heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract and any alteration thereof made as therein provided, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless District, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this bond, and does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the Specifications.

In the event suit is brought upon this bond by District and judgment is recovered, Surety shall pay all costs incurred by District in such suit, including a reasonable attorney’s fee to be fixed by the Court.

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by Principal and Surety above named, on the __________ day of ____________________, 20_____.

PRINCIPAL:	**SURETY**:
Signature	Signature
Name	Name (Seal)
Title	Title
Address	Address

NOTE: Signature of those executing for Surety must be properly acknowledged.

Instructions for Completing SBE Utilization Report

Download Excel form from District's website:
www.valleywater.org/Programs/Construction.aspx

This form is **due as noted below** with the **Progress Pay Application**.

1. **If the Prime Contractor is a Small Business Enterprise (SBE) Company—**
   Submit SBE Utilization Report with the First and Last Progress Pay Estimate
2. **If the Prime Contractor is not a SBE but SBE subcontractors will be working on the project—**
   Submit SBE Utilization Report monthly with each Progress Pay Application
3. **If the Prime Contractor is not a SBE and will have no SBE subcontractors working on the project—**
   No need to submit the SBE information at all

If Applicable (in Category 1 or 2 above)—The final SBE Utilization Report is due prior to final payment.

Instructions for completing the SBE Utilization Report

Page 1 Instructions:

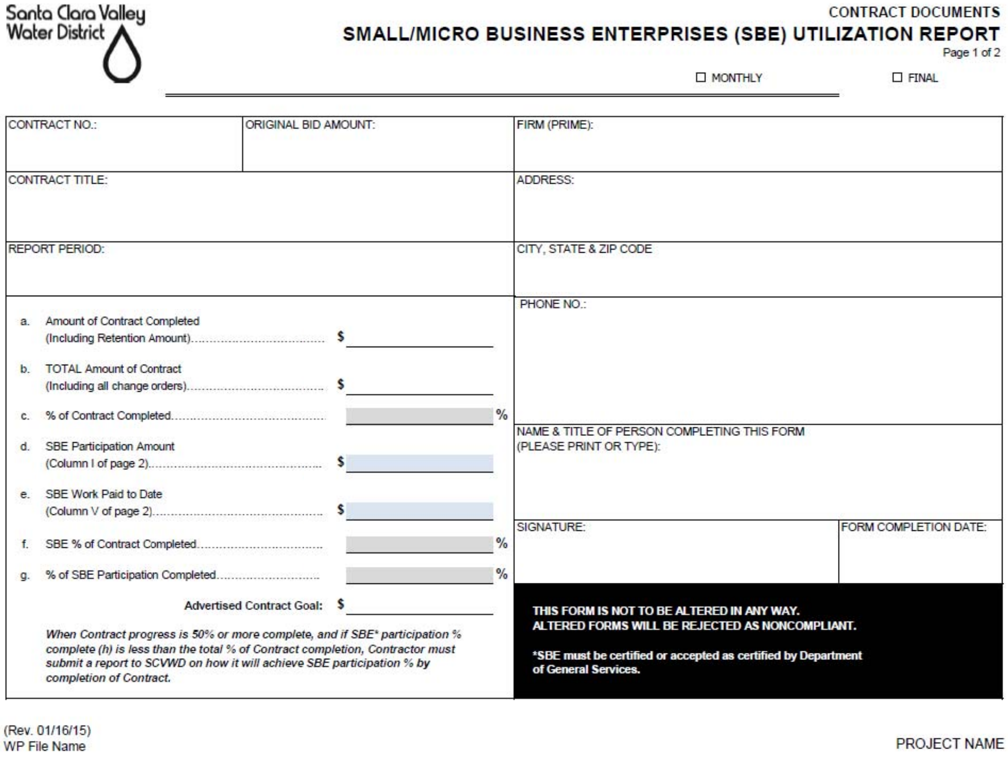
a.	This is the total amount of money paid to date by SCVWD for work completed on this Contract including retention.
b.	This is the CURRENT Total Contract amount, including all executed change orders.
c.	a ÷ b = c (Formula is built-in for line c of page 1)
d.	Total of Column I from page 2 of SBE Utilization Report (Total is linked for line d of page 1)
e.	Total of Column V from page 2 of SBE Utilization Report (Total is linked for line e of page 1)
f.	e ÷ a = f (Formula is built-in for line f of page 1)
g.	e ÷ d = g (Formula is built-in for line g of page 1)

Page 2 Instructions:

Column I.	List $ amount of SBE participation to each Subcontractor or Supplier listed on Bid Form #4 of Bid Proposal. The total of this column is linked to line d of page 1.
Column II.	List ***Adjusted*** $ amount of SBE participation to each Subcontrator or Supplier listed on Bid form #4 of Bid Proposal.
Column III.	List Materials/Supplies/Trucking amount paid to each SBE.
Column IV.	List Subcontractor amount paid to each SBE.
Column V.	Column III plus Column IV. The total of this column is linked to line e of page 1.

SAMPLE Small/Micro Business Enterprises (SBE) Utilization Report

Page 1 of 1



Santa Clara Valley Water District

CONTRACT DOCUMENTS

SMALL/MICRO BUSINESS ENTERPRISES (SBE) UTILIZATION REPORT

Page 1 of 2

☐ MONTHLY ☐ FINAL

CONTRACT NO.:	ORIGINAL BID AMOUNT:	FIRM (PRIME):
CONTRACT TITLE:		ADDRESS:
REPORT PERIOD:		CITY, STATE & ZIP CODE

a. Amount of Contract Completed (Including Retention Amount)................................... $ ____

b. TOTAL Amount of Contract (Including all change orders)................................... $ ____

c. % of Contract Completed.. ____ %

d. SBE Participation Amount (Column I of page 2).. $ ____

e. SBE Work Paid to Date (Column V of page 2).. $ ____

f. SBE % of Contract Completed................................ ____ %

g. % of SBE Participation Completed........................... ____ %

Advertised Contract Goal: $ ____

When Contract progress is 50% or more complete, and if SBE participation % complete (h) is less than the total % of Contract completion, Contractor must submit a report to SCVWD on how it will achieve SBE participation % by completion of Contract.*

PHONE NO.:

NAME & TITLE OF PERSON COMPLETING THIS FORM (PLEASE PRINT OR TYPE):

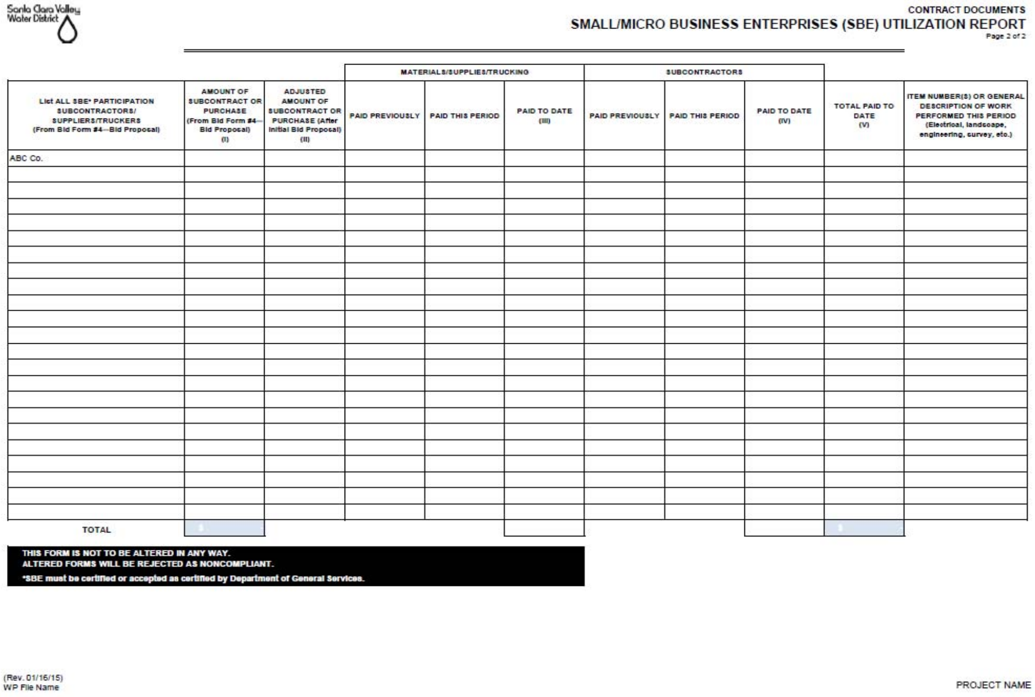
SIGNATURE: FORM COMPLETION DATE:

THIS FORM IS NOT TO BE ALTERED IN ANY WAY.
ALTERED FORMS WILL BE REJECTED AS NONCOMPLIANT.

***SBE must be certified or accepted as certified by Department of General Services.**

(Rev. 01/16/15)
WP File Name

PROJECT NAME



Santa Clara Valley Water District

CONTRACT DOCUMENTS

SMALL/MICRO BUSINESS ENTERPRISES (SBE) UTILIZATION REPORT

Page 2 of 2

			MATERIALS/SUPPLIES/TRUCKING			SUBCONTRACTORS				
List ALL SBE* PARTICIPATION SUBCONTRACTORS/ SUPPLIERS/TRUCKERS (From Bid Form #4—Bid Proposal)	AMOUNT OF SUBCONTRACT OR PURCHASE (From Bid Form #4—Bid Proposal) (I)	ADJUSTED AMOUNT OF SUBCONTRACT OR PURCHASE (After Initial Bid Proposal) (II)	PAID PREVIOUSLY	PAID THIS PERIOD	PAID TO DATE (III)	PAID PREVIOUSLY	PAID THIS PERIOD	PAID TO DATE (IV)	TOTAL PAID TO DATE (V)	ITEM NUMBER(S) OR GENERAL DESCRIPTION OF WORK PERFORMED THIS PERIOD (Electrical, landscape, engineering, survey, etc.)
ABC Co.										
TOTAL	$								$	

THIS FORM IS NOT TO BE ALTERED IN ANY WAY.
ALTERED FORMS WILL BE REJECTED AS NONCOMPLIANT.
***SBE must be certified or accepted as certified by Department of General Services.**

(Rev. 01/16/15)
WP File Name

PROJECT NAME

Download Excel form from District's website:
www.valleywater.org/Programs/Construction.aspx

Escrow Account No.: ____________________

This Escrow Agreement is made and entered into by and between:

SANTA CLARA VALLEY WATER DISTRICT whose address is 5750 Almaden Expressway, San Jose, CA 95118 hereinafter called "**Owner**," and

____________________ whose address is ____________________ hereinafter called "**Contractor**," and

____________________ whose address is ____________________ hereinafter called "**Escrow Agent**," and

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

1. Pursuant to §22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for **JOHN D. MORGAN PARK MONITORING WELLS PROJECT** in the amount of $__________ dated ______________ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of **Santa Clara Valley Water District**, and shall designate the Contractor as the beneficial owner.

2. The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

3. When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

7. The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

8. Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

9. Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

10. The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

11. Throughout the term of this Escrow Agreement, the Escrow Agent herein agrees to provide monthly statements indicating the account balances and status of the account, directly to the Owner, the Santa Clara Valley Water District, at the address provided below, to the attention of the District's representative identified below. The Escrow Agent may submit a request to provide such statements in electronic format.

12. The Escrow Agent must provide written notice to the Owner in advance of any action that will negatively impact the account.

On behalf of Owner:

Signature Date

Name

Capital Program Deputy Operating Officer
Designated Engineer
Title

5750 Almaden Expressway
San Jose, CA 95118
Address

On behalf of Contractor:

Signature Date

Name

Title

Address

On behalf of Escrow Agent:

Signature Date

Name

Title

Address

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

OWNER:

Signature Date

Name

Capital Program Deputy Operating Officer
Designated Engineer
Title

5750 Almaden Expressway
San Jose, CA 95118
Address

CONTRACTOR:

Signature Date

Name

Title

Address

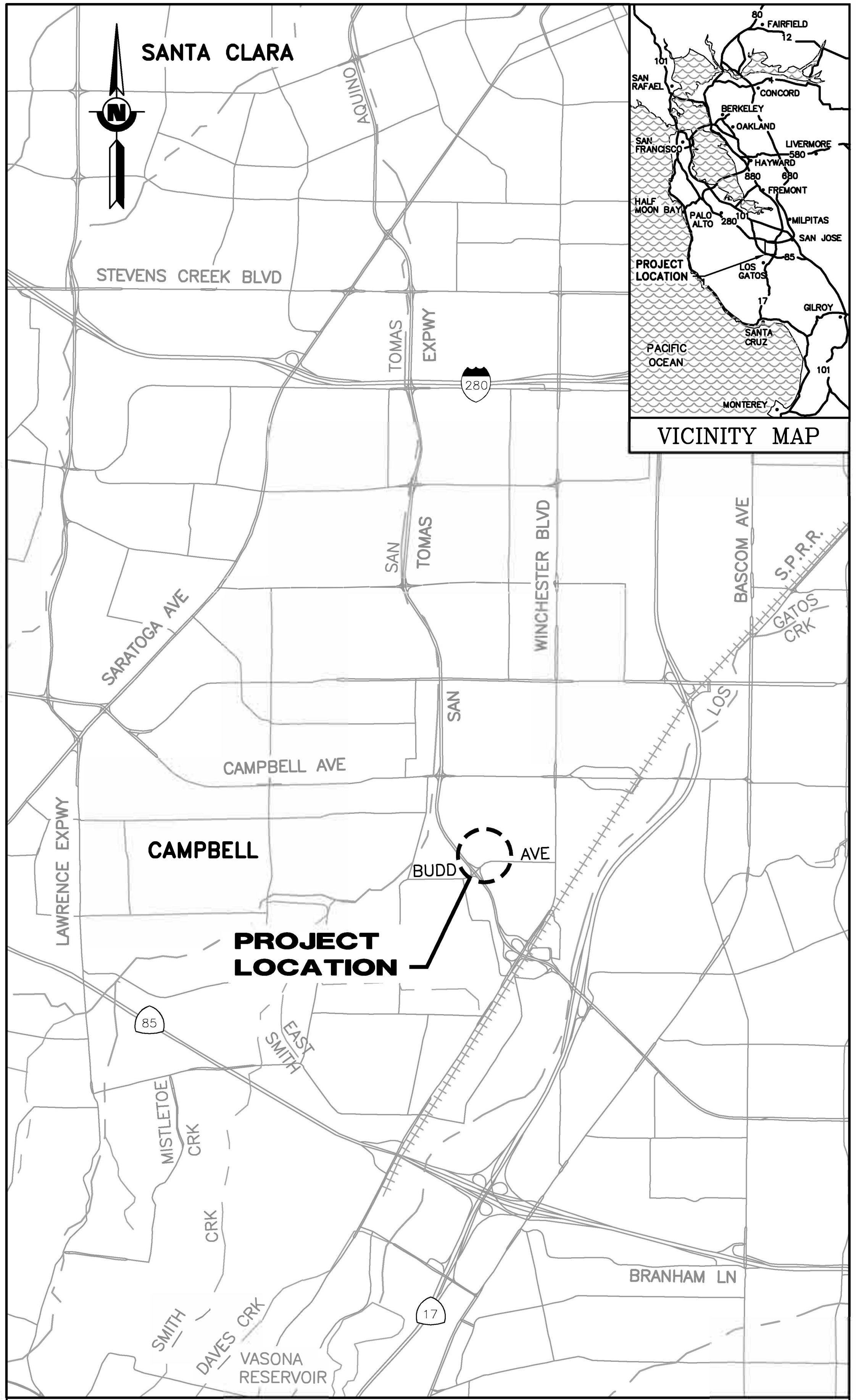
THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

Map and Construction Plan for the Construction of John D. Morgan Park Monitoring Wells Project

THIS PAGE INTENTIONALLY LEFT BLANK

USERNAME: Patrkey 10/19/2016 10:48 AM
FILENAME: K:\Active Projects\MP-91304001\JOHN D MORGAN PARK MONITORING WELLS\SHEETS\G-01.dwg



VICINITY MAP

LOCATION MAP
SCALE: 1" = 2,000'

MAP AND CONSTRUCTION PLAN

FOR

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

SAN TOMAS EXPRESSWAY AND BUDD AVENUE

CAMPBELL, CALIFORNIA

Santa Clara Valley Water District SM

APPROVED BY:

10/19/16
KAREN UYEDA P.E. DATE
ENGINEERING UNIT MANAGER
EAST SIDE PROJECT DELIVERY UNIT
SANTA CLARA VALLEY WATER DISTRICT

KAREN T. UYEDA
No. 51215
CIVIL

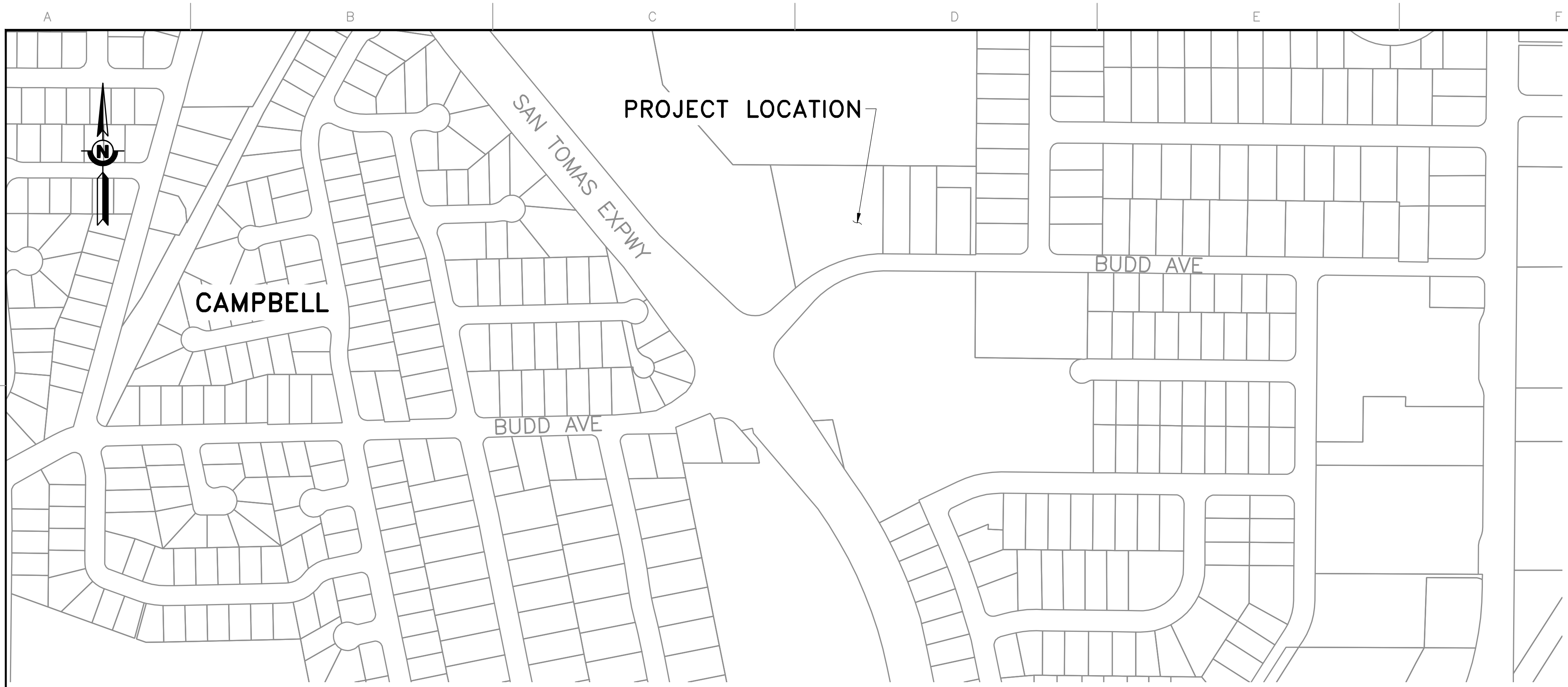
10/19/16
KATHERINE OVEN, P.E. DATE
DEPUTY OPERATING OFFICER
WATER UTILITY CAPITAL DIVISION
SANTA CLARA VALLEY WATER DISTRICT

ACCEPTED BY:

10/19/16
GARTH HALL, P.E. DATE
DEPUTY OPERATING OFFICER
WATER SUPPLY DIVISION
SANTA CLARA VALLEY WATER DISTRICT

CONTRACT NUMBER
C-0622
PROJECT NUMBER
91304001
SHEET CODE:
G-01
SHEET NUMBER:
1 OF 5

THIS PAGE INTENTIONALLY LEFT BLANK



SITE MAP

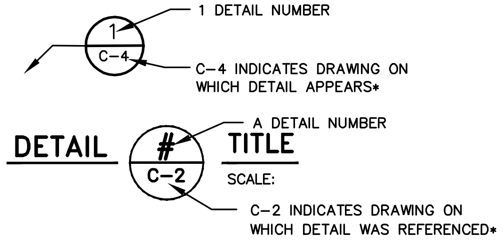
SCALE: 1" = 200'

DRAWING INDEX

SHEET CODE	DESCRIPTION	SHEET NO
	GENERAL	
G-01	TITLE SHEET	1 OF 5
G-02	SITE MAP, DRAWING INDEX, AND GENERAL NOTES	2 OF 5
	CIVIL	
C-01	SITE PLAN	3 OF 5
C-02	MONITORING WELL DETAILS	4 OF 5
C-03	MISCELLANEOUS DETAILS	5 OF 5

DETAIL AND SECTION DESIGNATION

* IF SECTION OR DETAIL APPEARS ON THE SAME DRAWING AS THE CALLOUT, THE DRAWING REFERENCE IS REPLACED WITH A DASH (–)


1
C-4
1 DETAIL NUMBER
C-4 INDICATES DRAWING ON WHICH DETAIL APPEARS*
DETAIL
#
C-2
A DETAIL NUMBER
TITLE
SCALE:
C-2 INDICATES DRAWING ON WHICH DETAIL WAS REFERENCED*

GENERAL NOTES

1. PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF EXISTING UNDERGROUND UTILITIES, THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS AND TAKE PROPER PRECAUTIONS TO AVOID ANY DAMAGE TO THEM. CALL UNDERGROUND SERVICE ALERT AT (800) 642–2444 AT LEAST 48 HOURS IN ADVANCE FOR LOCATION. CONTRACTOR SHALL ALSO SCAN FOR UTILITIES AT ALL DRILLING AND EXCAVATION POINTS SUBSEQUENT TO USA MARKINGS. SEE ARTICLE 15.02 OF THE SPECIFICATIONS.

4. CONTACT CITY OF CAMPBELL DEPARTMENT OF PUBLIC WORKS AT (408) 866–2150, 10 WORKING DAYS PRIOR TO STARTING ANY WORK.

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE
10/19/2016
DESIGN
T. MOHR/
D. LEE
DRAWN
S. KAROGLOU
CHECKED
K. UYEDA

ENGINEERING CERTIFICATION
DOUG LEE
No. 74001
CIVIL
Doug Lee
PROJECT ENGINEER DATE

Santa Clara Valley Water District℠

PROJECT NAME AND SHEET DESCRIPTION:

JOHN D. MORGAN PARK
MONITORING WELLS PROJECT

SITE MAP, DRAWING INDEX,
GENERAL NOTES AND DESIGN NOTES

SCALE
AS SHOWN

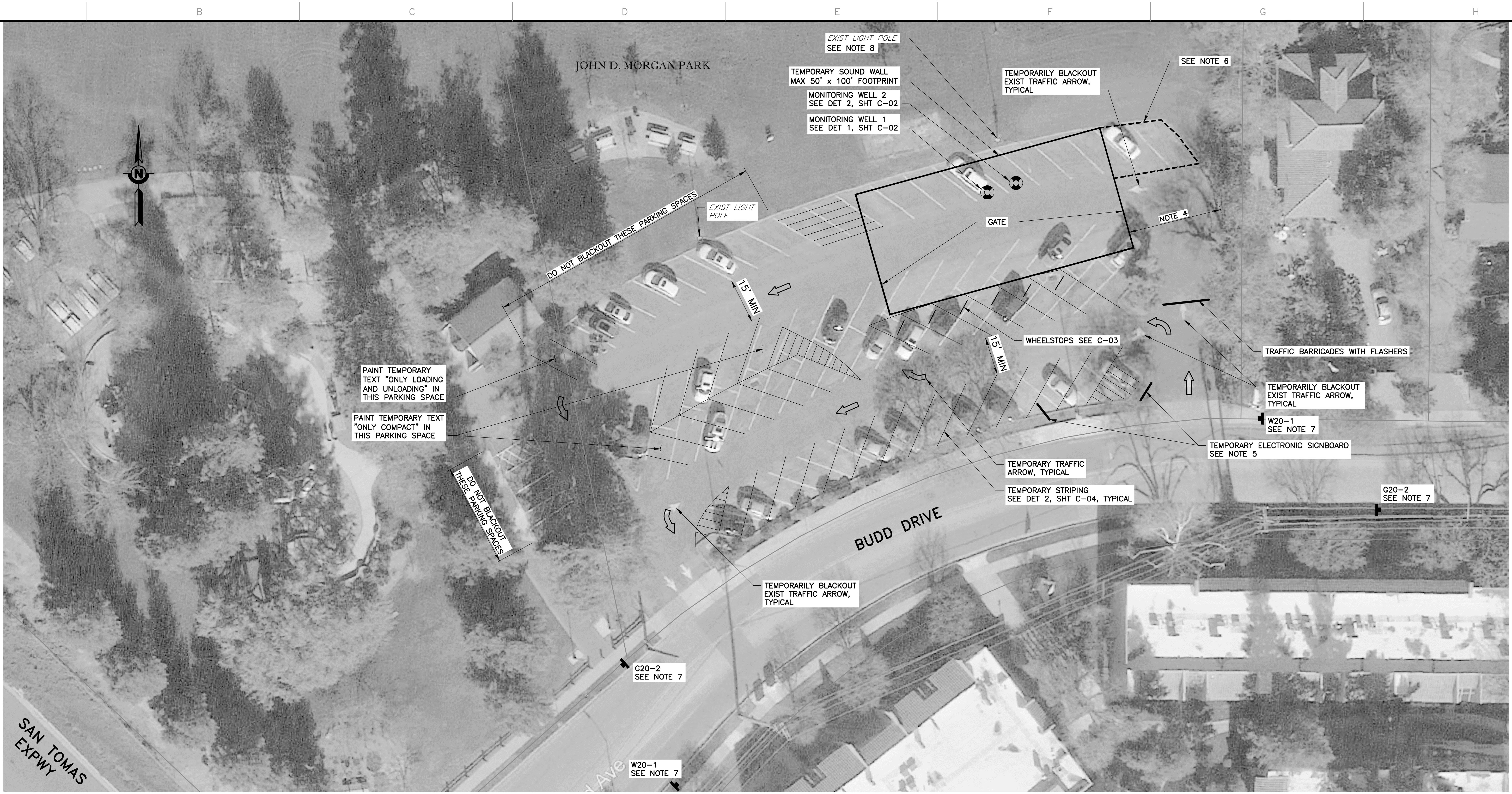
VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER
91304001

SHEET CODE:
G-02

SHEET NUMBER:
2 OF 5

USERNAME: Patrkey 10/19/2016 10:49 AM
FILENAME: K:\Active Projects\MP-91304001\JOHN D MORGAN PARK MONITORING WELLS\SHEETS\C-01.dwg


JOHN D. MORGAN PARK
EXIST LIGHT POLE SEE NOTE 8
TEMPORARY SOUND WALL MAX 50' x 100' FOOTPRINT
MONITORING WELL 2 SEE DET 2, SHT C-02
MONITORING WELL 1 SEE DET 1, SHT C-02
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
SEE NOTE 6
N
DO NOT BLACKOUT THESE PARKING SPACES
EXIST LIGHT POLE
GATE
NOTE 4
15' MIN
15' MIN
WHEELSTOPS SEE C-03
TRAFFIC BARRICADES WITH FLASHERS
PAINT TEMPORARY TEXT "ONLY LOADING AND UNLOADING" IN THIS PARKING SPACE
PAINT TEMPORARY TEXT "ONLY COMPACT" IN THIS PARKING SPACE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
W20-1 SEE NOTE 7
TEMPORARY ELECTRONIC SIGNBOARD SEE NOTE 5
TEMPORARY TRAFFIC ARROW, TYPICAL
TEMPORARY STRIPING SEE DET 2, SHT C-04, TYPICAL
G20-2 SEE NOTE 7
DO NOT BLACKOUT THESE PARKING SPACES
BUDD DRIVE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
G20-2 SEE NOTE 7
SAN TOMAS EXPWY
W20-1 SEE NOTE 7

SITE PLAN

SCALE: 1" = 20'

NOTES:

1. SURVEY EXISTING PARKING LOT STRIPING PRIOR TO WORK. FINAL STRIPING PLAN AFTER COMPLETION OF WORK SHALL MATCH EXISTING.
2. TEMPORARILY PAINT OUT (BLACKOUT) FOUR EXISTING TRAFFIC ARROWS AND EXISTING PARKING STRIPING WITH BLACK TRAFFIC PAINT UNLESS SHOWN NOT TO BE BLACKED OUT (54 PARKING SPACES TO BE PAINTED OUT).
3. TEMPORARILY PAINT TRAFFIC FLOW ARROWS AND PARKING STRIPING WITH WHITE TRAFFIC PAINT (30 TEMPORARY PARKING SPACES PAINTED IN).
4. CONFIRM SPACE REQUIRED FOR CONSTRUCTION VEHICLE TURNING INTO SOUND WALL WORK AREA PRIOR TO SOUND WALL CONSTRUCTION.
5. COORDINATE WITH CITY OF CAMPBELL TO LOCATE SIGNBOARD FOR TEMPORARY SHUTOFF OF IRRIGATION DEVICES AROUND ELECTRONIC SIGNBOARD. PROVIDE SUPPORTING PLATFORM AS NECESSARY TO LEVEL AND RAISE SIGNBOARD TO APPROPRIATE HEIGHTS AS DETERMINED IN THE FIELD BY THE CITY OF CAMPBELL REPRESENTATIVE.
6. CONTRACTOR STAGING SHALL BE WITHIN SOUNDWALL OR THE AREA TO THE NORTH EAST OF THE SOUND WALL AS SHOWN IN PLAN.
7. SIGNAGE SHALL BE PER CAMUTCD (CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES). W20-1 IS STANDARD SIGN FOR "ROAD WORK AHEAD". G20-2 IS STANDARD SIGN FOR "END ROAD WORK". COORDINATE WITH CITY OF CAMPBELL ON ACCEPTABLE INSTALLATION METHOD AND LOCATION.
8. TEMPORARILY REMOVE EXISTING LIGHT POLE PRIOR TO SOUND WALL INSTALLATION AND REINSTALL AFTER REMOVAL OF SOUNDWALL. COORDINATE LIGHT POLE REMOVAL AND REINSTALLATION WITH CITY OF CAMPBELL.

REV	DESCRIPTION	DATE	APPR

REFERENCE INFORMATION AND NOTES
MAP DATA: GOOGLE, IMAGERY DATE: 1/31/2016

DATE
10/19/2016
DESIGN
T. MOHR/ D. LEE
DRAWN
S. KAROGLOU
CHECKED
K. UYEDA

ENGINEERING CERTIFICATION
DOUG LEE
No. 74001
PROJECT ENGINEER
DATE

Santa Clara Valley Water District

PROJECT NAME AND SHEET DESCRIPTION:

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

SITE PLAN

SCALE
AS SHOWN

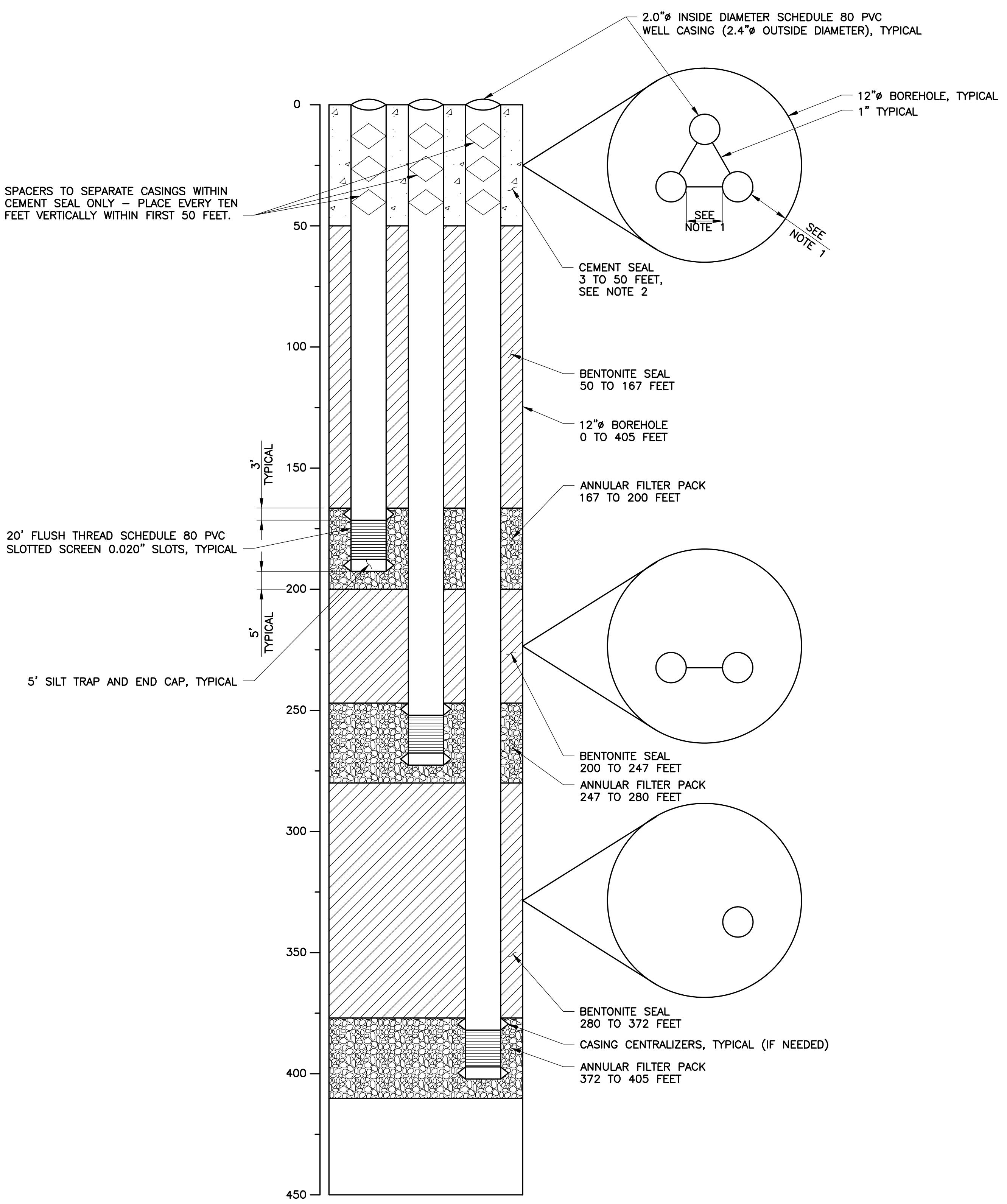
VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER
91304001

SHEET CODE:
C-01

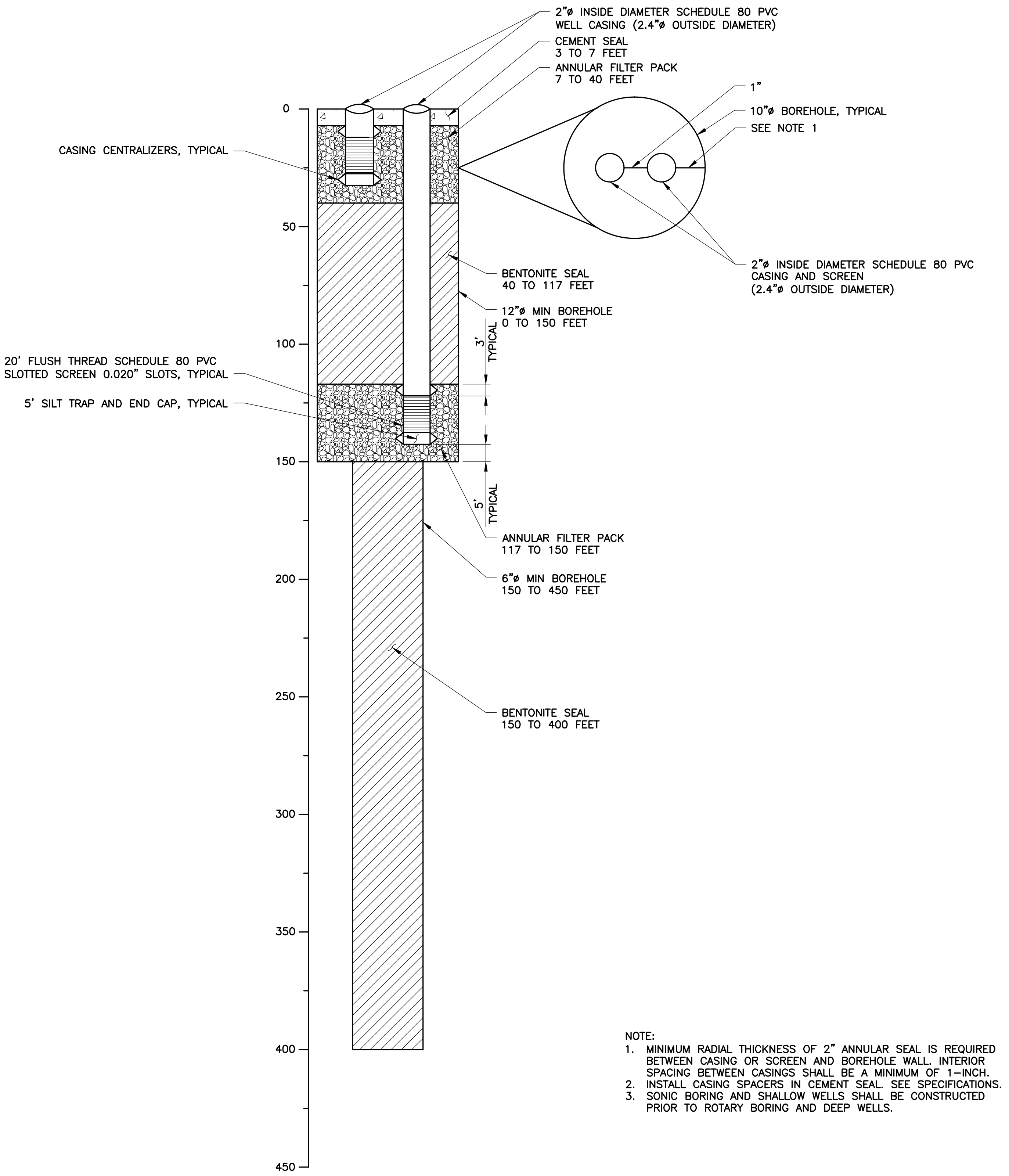
SHEET NUMBER:
3 OF 5

THIS PAGE INTENTIONALLY LEFT BLANK


2.0"ø INSIDE DIAMETER SCHEDULE 80 PVC WELL CASING (2.4"ø OUTSIDE DIAMETER), TYPICAL
12"ø BOREHOLE, TYPICAL
1" TYPICAL
SEE NOTE 1
SEE NOTE 1
SPACERS TO SEPARATE CASINGS WITHIN CEMENT SEAL ONLY – PLACE EVERY TEN FEET VERTICALLY WITHIN FIRST 50 FEET.
CEMENT SEAL 3 TO 50 FEET, SEE NOTE 2
BENTONITE SEAL 50 TO 167 FEET
12"ø BOREHOLE 0 TO 405 FEET
3' TYPICAL
ANNULAR FILTER PACK 167 TO 200 FEET
20' FLUSH THREAD SCHEDULE 80 PVC SLOTTED SCREEN 0.020" SLOTS, TYPICAL
5' TYPICAL
5' SILT TRAP AND END CAP, TYPICAL
BENTONITE SEAL 200 TO 247 FEET
ANNULAR FILTER PACK 247 TO 280 FEET
BENTONITE SEAL 280 TO 372 FEET
CASING CENTRALIZERS, TYPICAL (IF NEEDED)
ANNULAR FILTER PACK 372 TO 405 FEET
0
50
100
150
200
250
300
350
400
450

DETAIL 2 / C-01 ROTARY BORING AND DEEP WELLS

SCALE: NTS SEE NOTE 3


2"ø INSIDE DIAMETER SCHEDULE 80 PVC WELL CASING (2.4"ø OUTSIDE DIAMETER)
CEMENT SEAL 3 TO 7 FEET
ANNULAR FILTER PACK 7 TO 40 FEET
1"
10"ø BOREHOLE, TYPICAL
SEE NOTE 1
CASING CENTRALIZERS, TYPICAL
2"ø INSIDE DIAMETER SCHEDULE 80 PVC CASING AND SCREEN (2.4"ø OUTSIDE DIAMETER)
BENTONITE SEAL 40 TO 117 FEET
12"ø MIN BOREHOLE 0 TO 150 FEET
3' TYPICAL
20' FLUSH THREAD SCHEDULE 80 PVC SLOTTED SCREEN 0.020" SLOTS, TYPICAL
5' SILT TRAP AND END CAP, TYPICAL
5' TYPICAL
ANNULAR FILTER PACK 117 TO 150 FEET
6"ø MIN BOREHOLE 150 TO 450 FEET
BENTONITE SEAL 150 TO 400 FEET
0
50
100
150
200
250
300
350
400
450

NOTE:
1. MINIMUM RADIAL THICKNESS OF 2" ANNULAR SEAL IS REQUIRED BETWEEN CASING OR SCREEN AND BOREHOLE WALL. INTERIOR SPACING BETWEEN CASINGS SHALL BE A MINIMUM OF 1-INCH.
2. INSTALL CASING SPACERS IN CEMENT SEAL. SEE SPECIFICATIONS.
3. SONIC BORING AND SHALLOW WELLS SHALL BE CONSTRUCTED PRIOR TO ROTARY BORING AND DEEP WELLS.

DETAIL 1 / C-01 SONIC BORING AND SHALLOW WELLS

SCALE: NTS SEE NOTE 3

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE: 10/19/2016
DESIGN: T. MOHR/ D. LEE
DRAWN: S. KAROGLOU
CHECKED: K. UYEDA

ENGINEERING CERTIFICATION
THOMAS K.G. MOHR
No. 98
10.19.16
PROJECT ENGINEER DATE

Santa Clara Valley Water District

PROJECT NAME AND SHEET DESCRIPTION:

JOHN D. MORGAN PARK
MONITORING WELLS PROJECT

MONITORING WELL DETAILS

SCALE: AS SHOWN

VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 91304001

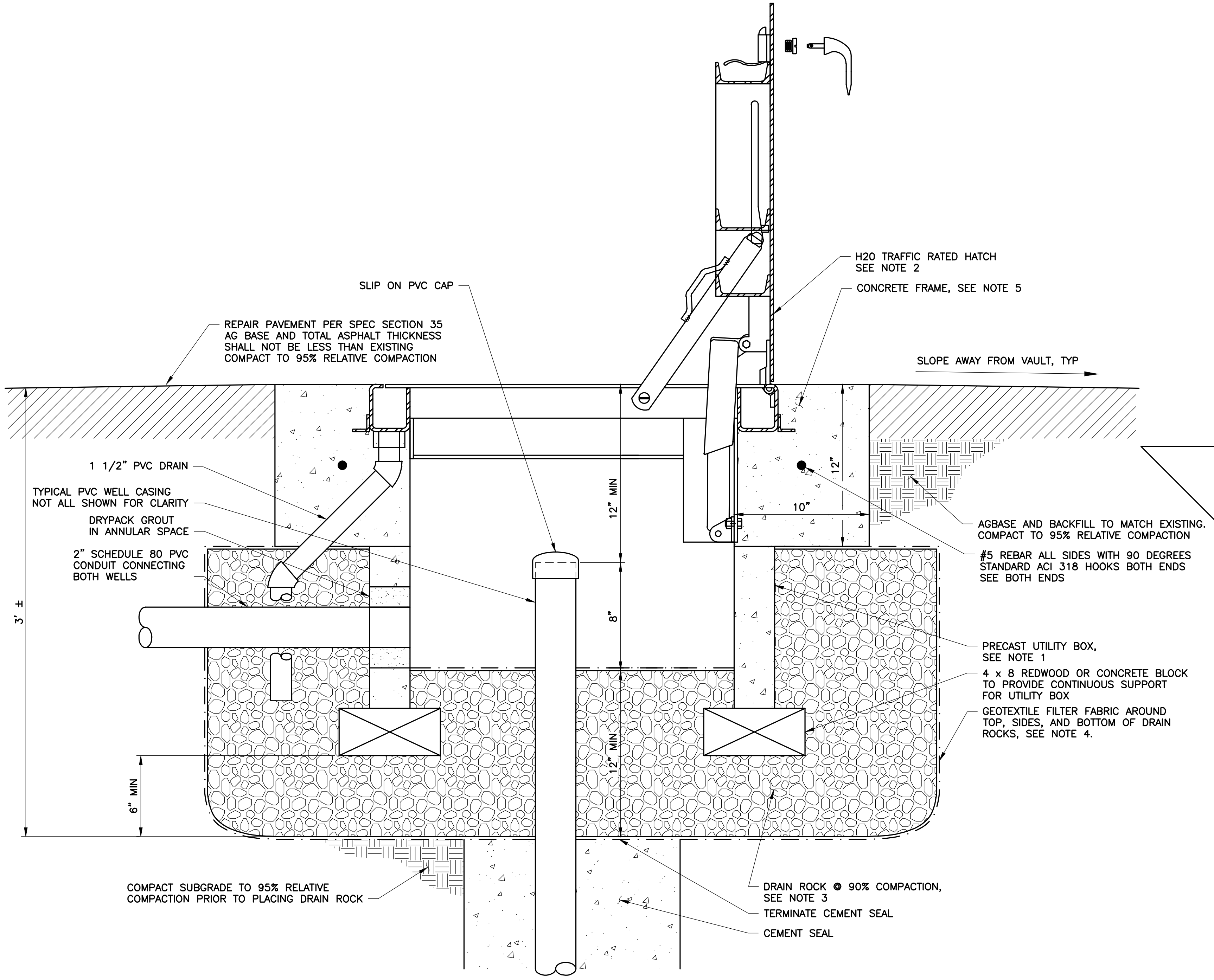
SHEET CODE: C-02

SHEET NUMBER: 4 OF 5

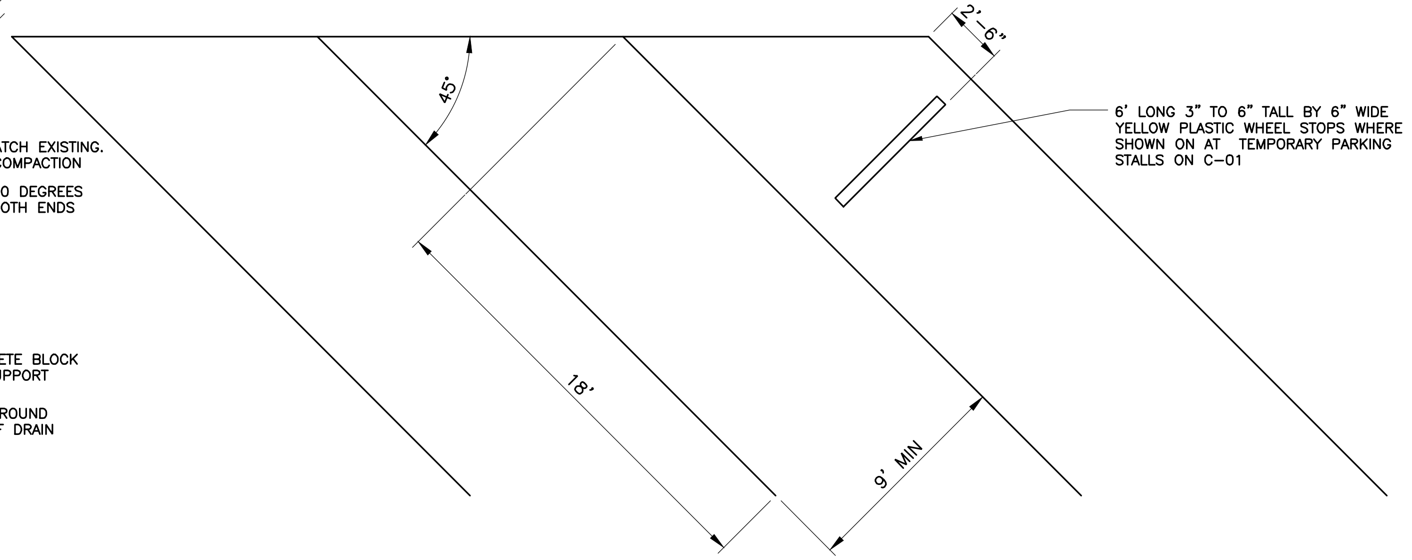
USERNAME: Patrkey 10/19/2016 10:50 AM
FILENAME: K:\Active Projects\MP-91304001\JOHN D MORGAN PARK MONITORING WELLS\SHEETS\C-03.dwg

NOTES:

1. PRECAST VAULTS SHALL BE 30"Lx30"Wx12"H OD WITH 24"Lx24"W ID. SEE SPECIFICATION SECTION 33, WELL HEAD COMPLETION.
2. HATCH COVER SHALL BE 24"x24" ALUMINUM, AASHTO H–20 TRAFFIC RATED. SEE SPECIFICATION SECTION 33.
3. DRAIN ROCK SHALL BE CLASS 1 TYPE A PERMEABLE MATERIAL PER CALTRANS STANDARD SPECIFICATIONS LATEST EDITION.
4. GEOTEXTILE FILTER FABRIC SHALL BE TENCATE MIRAFI 140 NC, HANES TERRATEX SD, SKAPS GT140, THRACE LINQ 130EX, PROPEX GEOTEX 451/4547, OR EQUAL BY OTHERS.
5. CEMENT SHALL BE ASTM C150 TYPE II OR V. CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
6. REINFORCING SHALL BE DEFORMED BAR CONFORMING TO ASTM A615–GRADE 60.


SLIP ON PVC CAP
H20 TRAFFIC RATED HATCH
SEE NOTE 2
CONCRETE FRAME, SEE NOTE 5
REPAIR PAVEMENT PER SPEC SECTION 35
AG BASE AND TOTAL ASPHALT THICKNESS
SHALL NOT BE LESS THAN EXISTING
COMPACT TO 95% RELATIVE COMPACTION
SLOPE AWAY FROM VAULT, TYP
1 1/2" PVC DRAIN
TYPICAL PVC WELL CASING
NOT ALL SHOWN FOR CLARITY
DRYPACK GROUT
IN ANNULAR SPACE
2" SCHEDULE 80 PVC
CONDUIT CONNECTING
BOTH WELLS
12" MIN
12"
10"
8"
3' ±
12" MIN
6" MIN
AGBASE AND BACKFILL TO MATCH EXISTING.
COMPACT TO 95% RELATIVE COMPACTION
#5 REBAR ALL SIDES WITH 90 DEGREES
STANDARD ACI 318 HOOKS BOTH ENDS
SEE BOTH ENDS
PRECAST UTILITY BOX,
SEE NOTE 1
4 x 8 REDWOOD OR CONCRETE BLOCK
TO PROVIDE CONTINUOUS SUPPORT
FOR UTILITY BOX
GEOTEXTILE FILTER FABRIC AROUND
TOP, SIDES, AND BOTTOM OF DRAIN
ROCKS, SEE NOTE 4.
COMPACT SUBGRADE TO 95% RELATIVE
COMPACTION PRIOR TO PLACING DRAIN ROCK
DRAIN ROCK @ 90% COMPACTION,
SEE NOTE 3
TERMINATE CEMENT SEAL
CEMENT SEAL

DETAIL 1 C–01 PRECAST UTILITY BOX OVER WELLS
SCALE: NTS


2'-6"
45°
18'
9' MIN
6' LONG 3" TO 6" TALL BY 6" WIDE
YELLOW PLASTIC WHEEL STOPS WHERE
SHOWN ON AT TEMPORARY PARKING
STALLS ON C–01

DETAIL 2 C–01 TYPICAL PARKING SPACE DIMENSIONS
SCALE: NTS

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE
10/19/2016
DESIGN
T. MOHR/
D. LEE
DRAWN
S. KAROGLOU
CHECKED
K. UYEDA

ENGINEERING CERTIFICATION
DOUG LEE
No. 74001
CIVIL
PROJECT ENGINEER DATE

Santa Clara Valley Water District

PROJECT NAME AND SHEET DESCRIPTION:
JOHN D. MORGAN PARK
MONITORING WELLS PROJECT

MISCELLANEOUS DETAILS

SCALE
AS SHOWN
VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER
91304001
SHEET CODE:
C–03
SHEET NUMBER:
5 OF 5

APPENDIX C

Guidelines for Contractor’s As-Built Mark Ups

THIS PAGE INTENTIONALLY LEFT BLANK

Guidelines for Contractor's As-Built Mark-Ups or Engineer's Record Drawings

Santa Clara Valley Water District
CADD Services Unit

Santa Clara Valley Water District

Dec. 2009/Version 1.1

Version: 1.1 Effective Date: December 2009	Document Number **CADD G101**

EXTERNAL USERS:
The version provided by the "District" represents the applicable version.

INTERNAL "DISTRICT" STAFF:
Printed or downloaded versions are for reference only. See the CADD Services Unit website for released version.

Guidelines for Contractor's As-Built Mark-Ups or Engineer's Record Drawings

CADD Services Unit

These guidelines were developed and written by Emmanuel Aryee (CADD Services unit) and the example figures were provided by Roberto Parmituan (Construction Inspection unit). They were then reviewed by the Plans and Specifications Standardization team.

TABLE OF CONTENTS

Page

1.0 REDLINE MARKING IN THE FIELD OR THE OFFICE 3
1.1 CHANGE 3
1.2 ADDITIONS 3
1.3 DELETIONS 4
2.0 ADDITIONAL SHEETS 4
3.0 TRACKING OF “AS-BUILT” CHANGES OR REVISIONS 4
4.0 LISTING OR RECORDING OF CHANGES OR REVISIONS 5
5.0 SIGNING OF THE AS-BUILT OR THE RECORD DRAWINGS 6

FIGURES

Figure 1 As-Built (AB) Triangle Symbol 5
Figure 2 Listing or Recording of Changes 5
Figure 3 Sample of As-Built Signature Stamp 6
Figure 4 Request for Information 7
Figure 5 Engineer’s Response to RFI 8
Figure 6 Mark-Up on Drawing Showing RFI 9
Figure 7 Mark-Up on Drawing Showing Engineer’s Response to RFI 10
Figure 8 Contractor’s Mark-Up Showing Actual Field Work 11

1.0 REDLINE MARKING IN THE FIELD OR THE OFFICE

Redline mark ups should be neat, legible, clear, and orderly and should accurately record and reflect the actual as-built condition.
It should be done with the correct symbols, lines, lettering and text, details, dimensioning, etc. using red pencil or ink.
All construction changes are based on authorized change documents or Engineer's instructions. These documents are kept in the Project or Construction files.

Change documents include addendum, request for information (RFI), contract change order (CCO), engineers work order or extra work order (EWO), field memo, etc. See Figure 4 & 6. It is not acceptable to attach change documents to the drawings to avoid having to mark up changes on the drawings. Changes should be interpreted and then transferred by redline markings on to the drawing sheets; they should be referred to in the listing of the changes or revisions in the title block of the drawing sheet. See Figure 4 to 8.
Already drafted changes, sketches, diagrams of the changes (not the complete change document) may be attached on blank spaces on the drawing sheet or a separate blank sheet, (not to cover the original drawing information) to show or illustrate the extent of the changes, if that will be helpful.
Features, items, details that were changed should be clearly detailed, dimensioned, located (survey information, tying to control lines, other features or monuments, station offsets or reference lengths, distances, etc.) and described in detail with lines, lettering & text, etc. with redline mark up.
Redline mark ups should be done in a manner that enables any competent technician or drafter to draft the as-built mark-up or the record drawings with minimum difficulty.
Redline marking includes making changes, additions and/or deletions representing the actual construction changes for the as-built drawings or changes authorized by the engineer on the record drawings.

1.1 CHANGE

A change is made when an item(s) on the drawing sheet is modified or replaced with completely new item(s). It may involve the change of a simple line, dimension, note or re-sketch of a part or a component. Only those areas of a drawing that are affected should be marked up. Item(s) changed should be clouded.

> **Clouding**—The use of a cloud to surround the area or item, text or symbol changed so as to make the changes stand out and be easily identified. The original content that is not affected by the change is left unclouded. See Figure 8.

1.2 ADDITIONS

Additions occur when new item(s) are introduced on to the drawing sheet to supplement or clarify information without modifying or replacing the original items. When additions are made to the drawings that affect only the drawing content, the additions should also be clouded since they are revisions to the original drawings.

1.3 DELETIONS

Deletions occur when features, details or items on the drawings are not constructed, are removed, are changed and/or replaced.

When preparing As-built drawings, all original drawing details, items are preserved. Deleted items should not be erased or removed from the marked up drawing. Deletions are shown by **crossing** out the deleted elements, details, lines, text, symbols, or any other items involved, with one of these methods;

- a slanted/horizontal line (strike-out line) across the element,
- a heavy “X” over the element,
- a bold, big X across a major element or across the entire drawing sheet.

The area or item affected should be clouded to indicate the limits of removal. See Figure 8.

2.0 ADDITIONAL SHEETS

When changes involve the incorporation of new additional sheet or sheets, it may or may not be necessary to do clouding on the original sheet. If there is a reference to a new sheet in the set, then the reference area should be clearly clouded and the call out to the additional sheet made. Otherwise the new drawing should be marked as normal but tracking notation should show that this is an additional sheet with the original sheet left intact.

In cases where the marking up of several changes on the same sheet leaves the drawing content unclear, crowded, or when features and items become unidentifiable or make the drawing unreadable, use of additional sheets should be considered.

3.0 TRACKING OF “AS-BUILT” CHANGES OR REVISIONS

All changes marked up must be tracked. They must be clearly identified with the triangle symbol with the revision number (used in the change document) or the letters “AB” embedded (if no revision numbers are used). The triangle symbol should be placed by the side of all changes, outside the cloud, on the affected drawing sheet.

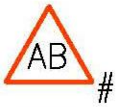


Figure 1—As-Built (AB) Triangle Symbol

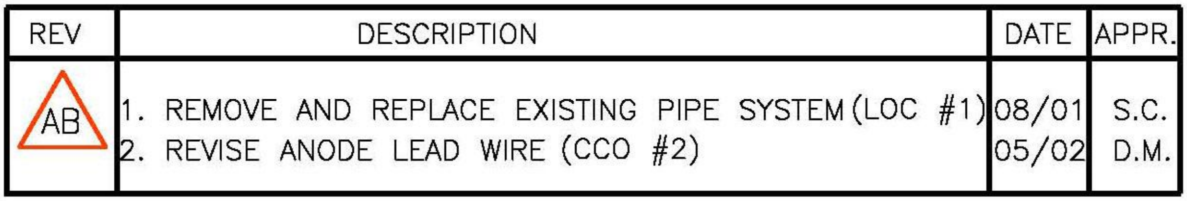
A subscript representing the number (#) assigned to track and identify the particular change or revision is placed by the triangle symbol as shown above in Figure 1.

4.0 LISTING OR RECORDING OF CHANGES OR REVISIONS

All changes that have been done since the final (construction) drawings were issued must be listed or recorded on the Contractor's "As-Built" drawing sheets and/or the Engineer's record drawings.

Changes made during construction must be listed or recorded and identified under the revision section of the title block of the drawing sheet. Each listing should be identified with the corresponding number (subscript) of the triangle symbol. The listing consist of a short description of the change and an abbreviated name of the change document such as CCO #2 for contract change order number 2, placed in brackets, under the "DESCRIPTION" heading.

It could also be "as per the Engineer instructions" for some of the changes done under the direct instructions of the Engineer. It must include a date and the initials of the person who authorized the change. See Figure 2.

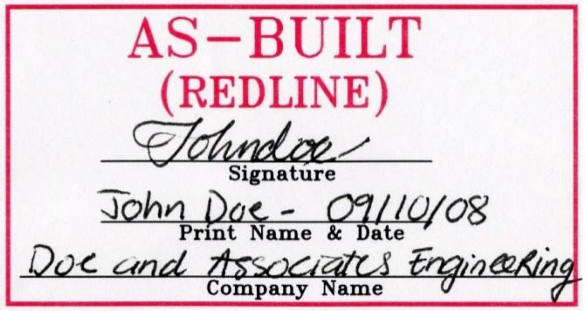


REV	DESCRIPTION	DATE	APPR.
AB	1. REMOVE AND REPLACE EXISTING PIPE SYSTEM (LOC #1) 2. REVISE ANODE LEAD WIRE (CCO #2)	08/01 05/02	S.C. D.M.

Figure 2—Listing or Recording of Changes

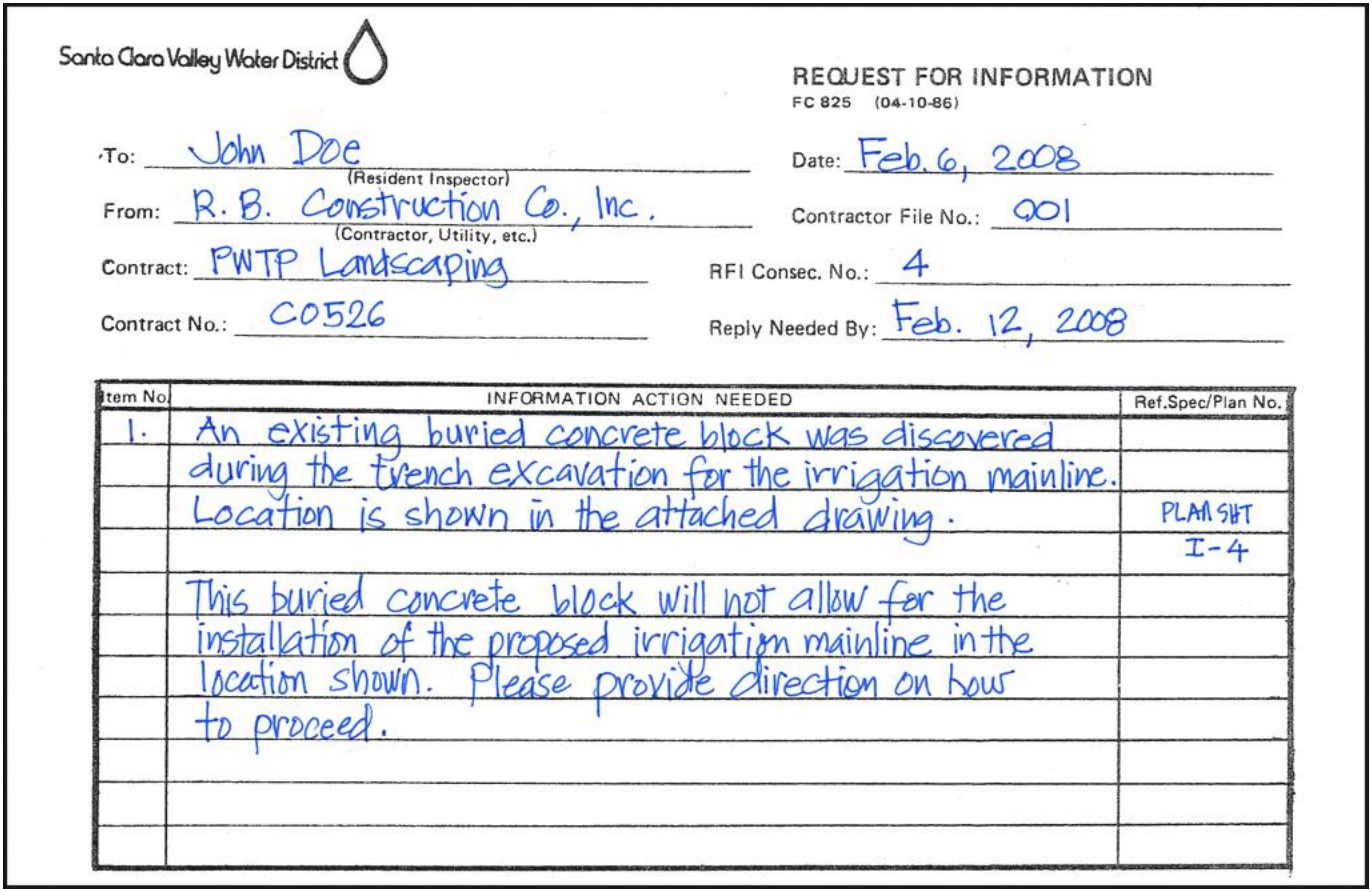
5.0 SIGNING OF THE AS-BUILT OR THE RECORD DRAWINGS

Each sheet must be signed and dated by the contractor's representative for the contractor's as-built mark-ups. The representative must also include his/her printed name and his/her company's name. Similarly the Engineer must do the same for the record drawings. See sample below.



AS-BUILT
(REDLINE)
Johndoe
Signature
John Doe - 09/10/08
Print Name & Date
Doe and Associates Engineering
Company Name

Figure 3—Sample of As-Built Signature Stamp



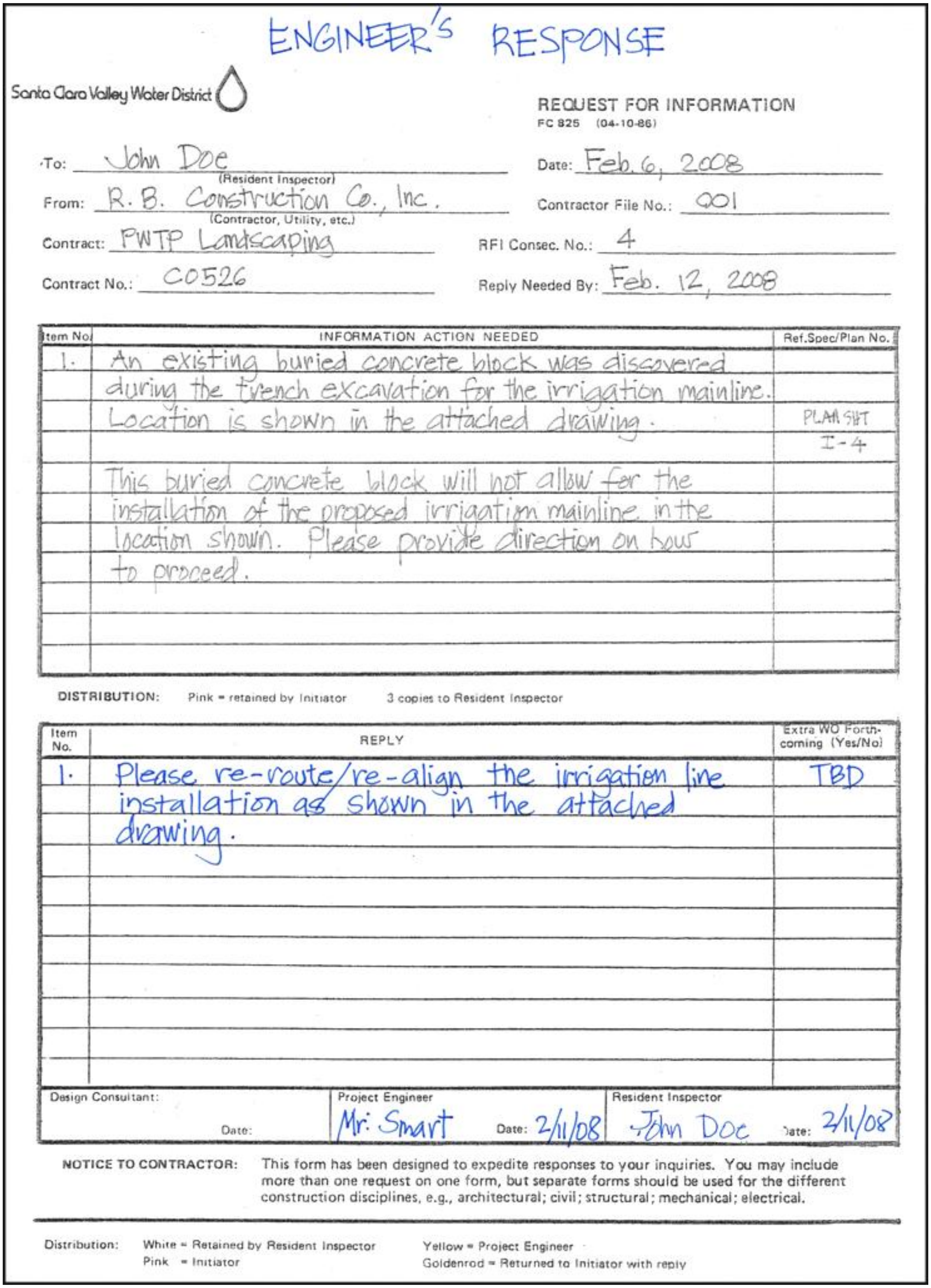
Santa Clara Valley Water District

REQUEST FOR INFORMATION
FC 825 (04-10-86)

To: John Doe (Resident Inspector)
Date: Feb. 6, 2008
From: R. B. Construction Co., Inc. (Contractor, Utility, etc.)
Contractor File No.: 001
Contract: PWTP Landscaping
RFI Consec. No.: 4
Contract No.: C0526
Reply Needed By: Feb. 12, 2008

Item No.	INFORMATION ACTION NEEDED	Ref.Spec/Plan No.
1.	An existing buried concrete block was discovered during the trench excavation for the irrigation mainline. Location is shown in the attached drawing.	PLAN SHT I-4
	This buried concrete block will not allow for the installation of the proposed irrigation mainline in the location shown. Please provide direction on how to proceed.	

Figure 4—Request for Information



ENGINEER'S RESPONSE

Santa Clara Valley Water District

REQUEST FOR INFORMATION
FC 825 (04-10-86)

To: John Doe (Resident Inspector)
Date: Feb. 6, 2008
From: R. B. Construction Co., Inc. (Contractor, Utility, etc.)
Contractor File No.: 001
Contract: PWTP Landscaping
RFI Consec. No.: 4
Contract No.: C0526
Reply Needed By: Feb. 12, 2008

Item No.	INFORMATION ACTION NEEDED	Ref.Spec/Plan No.
1.	An existing buried concrete block was discovered during the trench excavation for the irrigation mainline. Location is shown in the attached drawing.	PLAN SHT I-4
	This buried concrete block will not allow for the installation of the proposed irrigation mainline in the location shown. Please provide direction on how to proceed.	

DISTRIBUTION: Pink = retained by Initiator 3 copies to Resident Inspector

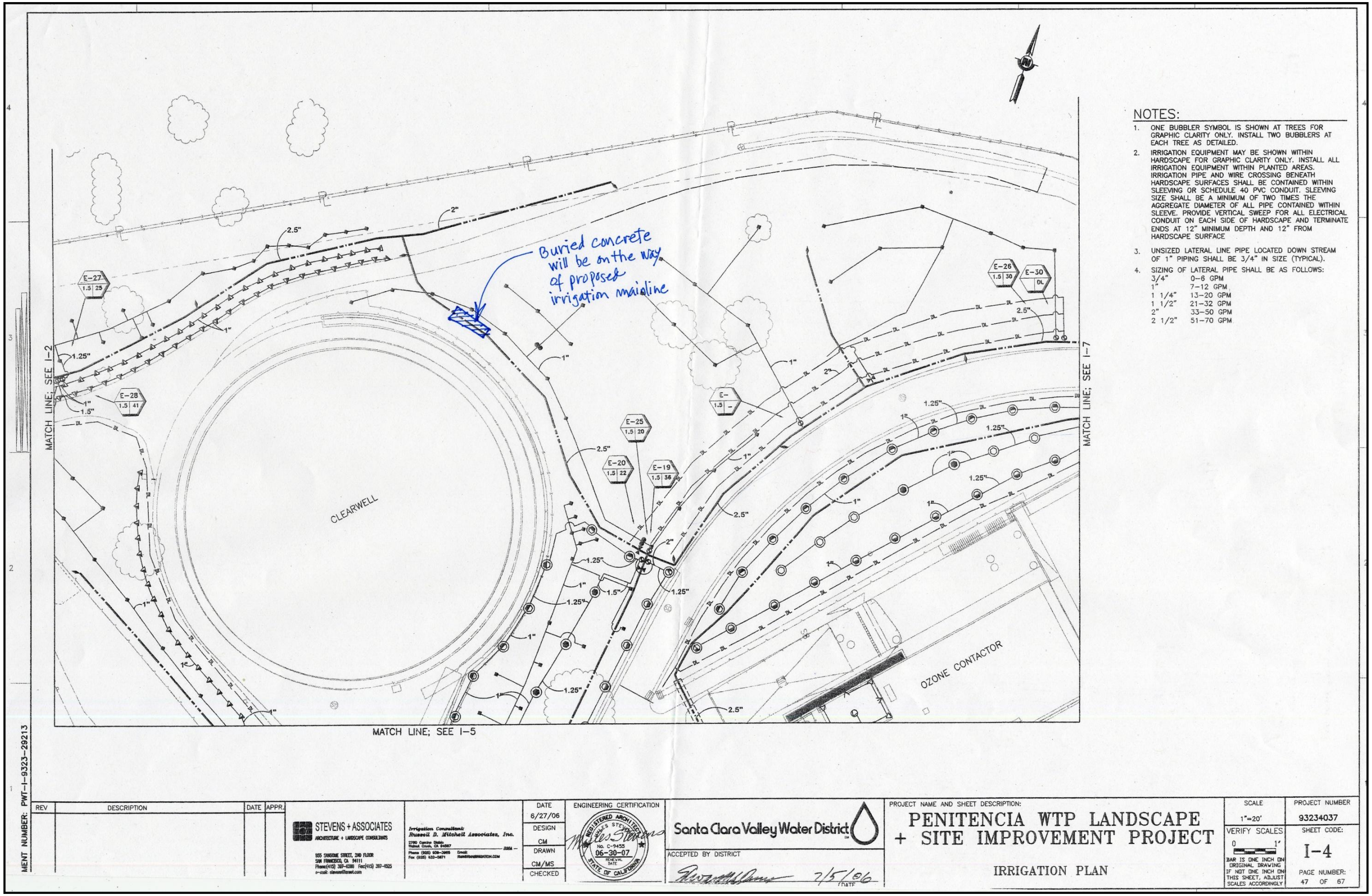
Item No.	REPLY	Extra WO Forthcoming (Yes/No)
1.	Please re-route/re-align the irrigation line installation as shown in the attached drawing.	TBD

Design Consultant: Date:	Project Engineer Mr. Smart Date: 2/11/08	Resident Inspector John Doe Date: 2/11/08

NOTICE TO CONTRACTOR: This form has been designed to expedite responses to your inquiries. You may include more than one request on one form, but separate forms should be used for the different construction disciplines, e.g., architectural; civil; structural; mechanical; electrical.

Distribution: White = Retained by Resident Inspector
Pink = Initiator
Yellow = Project Engineer
Goldenrod = Returned to Initiator with reply

Figure 5—Engineer's Response to RFI


Buried concrete will be on the way of proposed irrigation mainline
CLEARWELL
OZONE CONTACTOR
MATCH LINE; SEE I-2
MATCH LINE; SEE I-5
MATCH LINE; SEE I-7
E-27
E-28
E-25
E-20
E-19
E-26
E-30
2.5"
2"
1.25"
1.5"
1"
MENT NUMBER: PWT-I-9323-29213
REV
DESCRIPTION
DATE
APPR.
STEVENS + ASSOCIATES
ARCHITECTURE + LANDSCAPE CONSULTANTS
Irrigation Consultant: Russell D. Mitchell Associates, Inc.
DATE 6/27/06
DESIGN CM
DRAWN CM/MS
CHECKED
ENGINEERING CERTIFICATION
No. C-9455
06-30-07
Santa Clara Valley Water District
ACCEPTED BY DISTRICT
7/5/06
DATE
PROJECT NAME AND SHEET DESCRIPTION:
PENITENCIA WTP LANDSCAPE + SITE IMPROVEMENT PROJECT
IRRIGATION PLAN
SCALE 1"=20'
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
PROJECT NUMBER 93234037
SHEET CODE: I-4
PAGE NUMBER: 47 OF 67

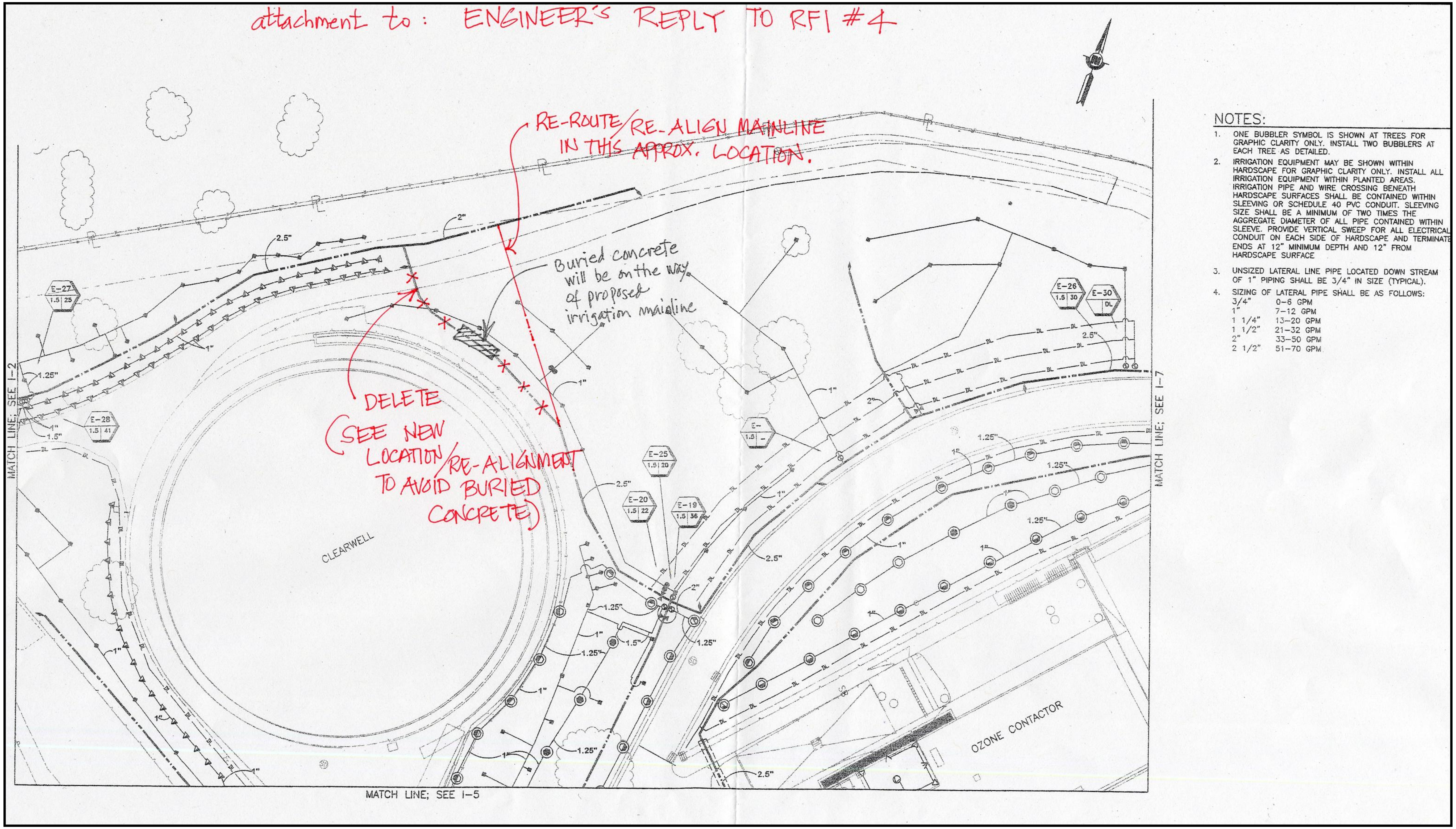
NOTES:

1. ONE BUBBLER SYMBOL IS SHOWN AT TREES FOR GRAPHIC CLARITY ONLY. INSTALL TWO BUBBLERS AT EACH TREE AS DETAILED.
2. IRRIGATION EQUIPMENT MAY BE SHOWN WITHIN HARDSCAPE FOR GRAPHIC CLARITY ONLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN PLANTED AREAS. IRRIGATION PIPE AND WIRE CROSSING BENEATH HARDSCAPE SURFACES SHALL BE CONTAINED WITHIN SLEEVING OR SCHEDULE 40 PVC CONDUIT. SLEEVING SIZE SHALL BE A MINIMUM OF TWO TIMES THE AGGREGATE DIAMETER OF ALL PIPE CONTAINED WITHIN SLEEVE. PROVIDE VERTICAL SWEEP FOR ALL ELECTRICAL CONDUIT ON EACH SIDE OF HARDSCAPE AND TERMINATE ENDS AT 12" MINIMUM DEPTH AND 12" FROM HARDSCAPE SURFACE
3. UNSIZED LATERAL LINE PIPE LOCATED DOWN STREAM OF 1" PIPING SHALL BE 3/4" IN SIZE (TYPICAL).
4. SIZING OF LATERAL PIPE SHALL BE AS FOLLOWS:

3/4"	0-6 GPM
1"	7-12 GPM
1 1/4"	13-20 GPM
1 1/2"	21-32 GPM
2"	33-50 GPM
2 1/2"	51-70 GPM

Figure 6—

Mark-Up on Drawing Showing RFI



attachment to: ENGINEER'S REPLY TO RFI #4

RE-ROUTE/RE-ALIGN MAINLINE IN THIS APPROX. LOCATION.

Buried concrete will be on the way of proposed irrigation mainline

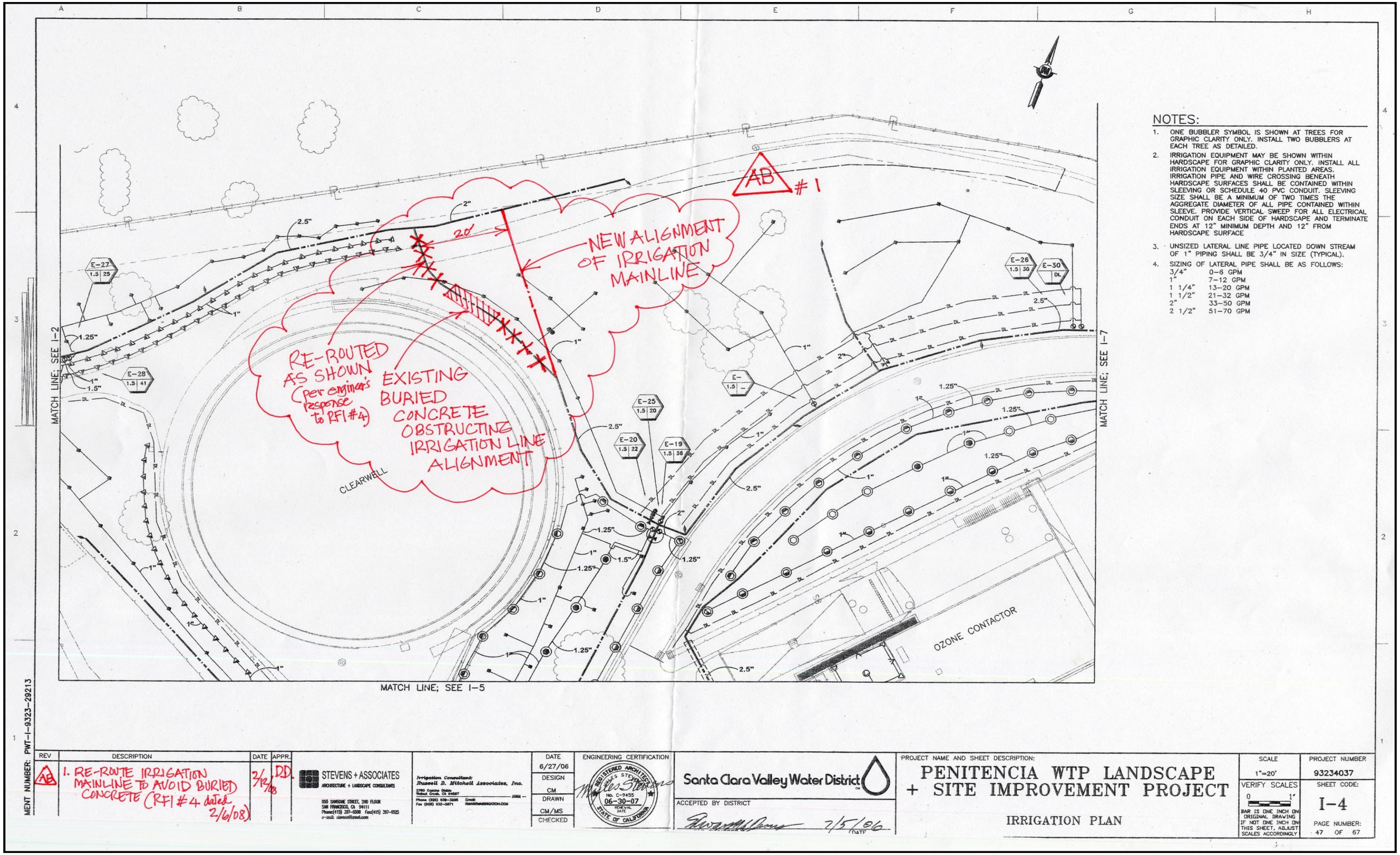
DELETE (SEE NEW LOCATION/RE-ALIGNMENT TO AVOID BURIED CONCRETE)

NOTES:

1. ONE BUBBLER SYMBOL IS SHOWN AT TREES FOR GRAPHIC CLARITY ONLY. INSTALL TWO BUBBLERS AT EACH TREE AS DETAILED.
2. IRRIGATION EQUIPMENT MAY BE SHOWN WITHIN HARDSCAPE FOR GRAPHIC CLARITY ONLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN PLANTED AREAS. IRRIGATION PIPE AND WIRE CROSSING BENEATH HARDSCAPE SURFACES SHALL BE CONTAINED WITHIN SLEEVING OR SCHEDULE 40 PVC CONDUIT. SLEEVING SIZE SHALL BE A MINIMUM OF TWO TIMES THE AGGREGATE DIAMETER OF ALL PIPE CONTAINED WITHIN SLEEVE. PROVIDE VERTICAL SWEEP FOR ALL ELECTRICAL CONDUIT ON EACH SIDE OF HARDSCAPE AND TERMINATE ENDS AT 12" MINIMUM DEPTH AND 12" FROM HARDSCAPE SURFACE
3. UNSIZED LATERAL LINE PIPE LOCATED DOWN STREAM OF 1" PIPING SHALL BE 3/4" IN SIZE (TYPICAL).
4. SIZING OF LATERAL PIPE SHALL BE AS FOLLOWS:

3/4"	0-6 GPM
1"	7-12 GPM
1 1/4"	13-20 GPM
1 1/2"	21-32 GPM
2"	33-50 GPM
2 1/2"	51-70 GPM

Figure 7—Mark-Up on Drawing Showing Engineer's Response to RFI



NOTES:

1. ONE BUBBLER SYMBOL IS SHOWN AT TREES FOR GRAPHIC CLARITY ONLY. INSTALL TWO BUBBLERS AT EACH TREE AS DETAILED.
2. IRRIGATION EQUIPMENT MAY BE SHOWN WITHIN HARDSCAPE FOR GRAPHIC CLARITY ONLY. INSTALL ALL IRRIGATION EQUIPMENT WITHIN PLANTED AREAS. IRRIGATION PIPE AND WIRE CROSSING BENEATH HARDSCAPE SURFACES SHALL BE CONTAINED WITHIN SLEEVING OR SCHEDULE 40 PVC CONDUIT. SLEEVING SIZE SHALL BE A MINIMUM OF TWO TIMES THE AGGREGATE DIAMETER OF ALL PIPE CONTAINED WITHIN SLEEVE. PROVIDE VERTICAL SWEEP FOR ALL ELECTRICAL CONDUIT ON EACH SIDE OF HARDSCAPE AND TERMINATE ENDS AT 12" MINIMUM DEPTH AND 12" FROM HARDSCAPE SURFACE
3. UNSIZED LATERAL LINE PIPE LOCATED DOWN STREAM OF 1" PIPING SHALL BE 3/4" IN SIZE (TYPICAL).
4. SIZING OF LATERAL PIPE SHALL BE AS FOLLOWS:

3/4"	0–6 GPM
1"	7–12 GPM
1 1/4"	13–20 GPM
1 1/2"	21–32 GPM
2"	33–50 GPM
2 1/2"	51–70 GPM

REV	DESCRIPTION	DATE	APPR.
AB	1. RE-ROUTE IRRIGATION MAINLINE TO AVOID BURIED CONCRETE (RFI #4 dated 2/6/08)	2/12/08	DD.

STEVENS + ASSOCIATES
ARCHITECTURE + LANDSCAPE CONSULTANTS
855 SANSOME STREET, 2ND FLOOR
SAN FRANCISCO, CA 94111
Phone:(415) 397-6500 Fax:(415) 397-6525

Irrigation Consultant:
Russell D. Mitchell Associates, Inc.
2760 Camino Diablo
Walnut Creek, CA 94597
Phone (925) 939-3985
Fax (925) 932-3671

DATE 6/27/06
DESIGN CM
DRAWN CM/MS
CHECKED

ENGINEERING CERTIFICATION
Myles Stevens
No. C-9455
06-30-07

Santa Clara Valley Water District
ACCEPTED BY DISTRICT
7/5/06
DATE

PROJECT NAME AND SHEET DESCRIPTION:
PENITENCIA WTP LANDSCAPE + SITE IMPROVEMENT PROJECT
IRRIGATION PLAN

SCALE 1"=20'
VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 93234037
SHEET CODE: I-4
PAGE NUMBER: 47 OF 67

Figure 8—Contractor's Mark-Up Showing Actual Field Work

APPENDIX D

Solid Materials Management Report

THIS PAGE INTENTIONALLY LEFT BLANK

Santa Clara Valley Water District

SOLID MATERIALS MANAGEMENT REPORT

Project Name:	Project Number:	
Contract Number:	Reporting period (month and year): from to	
Contractor Name:	Phone Number:	FAX Number:
Street Address:	City, State, and Zip:	
Preparer's Name (please print):	Signature:	Date:

A. Construction and Demolition Waste Management Report

Note 1: Earth and rock material, ground water, and construction and demolition waste material that contains contaminated or hazardous materials shall not be reported as either waste material diverted from or disposed to landfill. See specifications for project-specific list of construction and demolition waste materials.

Note 2: Contractor to attach facility receipts for loads taken for disposal in landfill and loads taken for recovery/recycling.

Note 3: If no minimum diversion rate is specified, contractor has the option of reporting material quantity by weight (ton) or volume (cubic yard).

Name and Address of Recycling or Disposal Facility	Type of Material Enter letter as follows: A = asphalt C = concrete M = metal D = mixed debris W = wood/cleared vegetation O = other (described) **See Note 1.**	Type of Activity Enter number as follows: 1 = source-separated materials recycling 2 = on-site reuse 3 = mixed debris recycling 4 = reuse of salvageable items 5 = disposal at landfill or transfer station 6 = other (described)	Quantity of Material Taken to Landfill (ton) **See Notes 2 and 3.**	Quantity of Material Diverted From Landfill (ton) **See Notes 2 and 3.**	Total Material Generated (ton) **See Note 3.**	Material Diversion Rate (%)
		Total Quantity Taken to Landfill (ton)		▨	▨	▨
		Total Quantity Diverted from Landfill (ton)	▨		▨	▨
		Total Material Generated (ton)	▨	▨		▨
		Total Material Diversion Rate (%)	▨	▨	▨	

B. Post-Consumer Recycled Content Report

Note 1: Contractor to attach documentation certifying % of post-consumer recycled material content

Material/Product Description	Manufacturer (Name, Address, and Phone Number)	Post-Consumer Recycled Content Required per Contract (%)	Certified Post-Consumer Recycled Content (%) **See Note 1.**
Specification writer to list material/equipment specified to be furnished/installed which must contain a minimum specified percentage of post-consumer recycled material	*(Contractor to complete)*	*Specification writer to list, for each material/product, the minimum % content of post-consumer recycled material*	*(Contractor to complete)*

Contractor Certification: I certify under penalty of perjury that the information provided in this form is complete and accurate.

SIGNATURE:	DATE OF REPORT:
PRINT NAME AND TITLE:	

I have reviewed the information submitted in this report for completeness.

ENGINEER SIGNATURE:	DATE:
PRINT NAME:	

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E

Migratory Bird Permit Memorandum

THIS PAGE INTENTIONALLY LEFT BLANK

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, Washington, D C 20240

MBPM-2
Date: APR 15, 2003

MIGRATORY BIRD PERMIT MEMORANDUM

SUBJECT: Nest Destruction

PURPOSE: The purpose of the memorandum is to clarify the application of the Migratory Bird Treaty Act (MBTA) to migratory bird nest destruction, and to provide guidance for advising the public regarding this issue.

POLICY: The MBTA does not contain any prohibition that applies to the destruction of a migratory bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. To minimize MBTA violations, Service employees should make every effort to inform the public of how to minimize the risk of taking migratory bird species whose nesting behaviors make it difficult to determine occupancy status or continuing nest dependency.

The MBTA specifically protects migratory bird nests from ***possession, sale, purchase, barter, transport, import,*** and ***export,*** and ***take.*** The other prohibitions of the MBTA – ***capture, pursue, hunt,*** and ***kill*** – are inapplicable to nests. The regulatory definition of ***take,*** as defined by 50 CFR 10.12, ***means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue hunt, shoot, wound,*** *kill,* ***trap, capture, or collect.*** Only ***collect*** applies to nests.

While it is illegal to collect, possess, and by any means transfer possession of any migratory bird nest, the MBTA does not contain any prohibition that applies to the destruction of a bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. The MBTA does not authorize the Service to issue permits in situations in which the prohibitions of the Act do not apply, such as the destruction of unoccupied nests. (Some unoccupied nests are legally protected by statutes other than the MBTA, including nests of threatened and endangered migratory bird species and bald and golden eagles, within certain parameters.)

However, the public should be made aware that, while destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs, is illegal and fully prosecutable under the MBTA.

Due to the biological and behavioral characteristics of some migratory bird species, destruction of their nests entails an elevated degree of risk of violating the MBTA. For example, colonial nesting birds are highly vulnerable to disturbance; the destruction of unoccupied nests during or near the nesting season could result in a significant level of take. Another example involves ground nesting species such as burrowing owls and bank swallows, which nest in cavities in the ground, making it difficult to detect whether or not their nests are occupied by eggs or nestlings or are otherwise still essential to the survival of the juvenile birds. The Service should make every effort to raise public awareness regarding the possible presence of birds and the risk of violating the MBTA, the Endangered Species Act (ESA), and the Bald and Golden Eagle Protection Act (BGEPA), and should inform the public of factors that will help minimize the likelihood that take would occur should nests be destroyed (i.e., when active nesting season normally occurs).

The Service should also take care to discern that persons who request MBTA permits for nest destruction are not targeting nests of endangered or threatened species or bald or golden eagles, so that the public can be made aware of the prohibitions of the ESA and the BGEPA against nest destruction.

In situations where it is necessary (i.e., for public safety) to remove (destroy) a nest that is occupied by eggs or nestlings or is otherwise still essential to the survival of a juvenile bird, and a permit is available pursuant to **50** CFR parts 13 and 21, the Service may issue a permit to take individual birds.

Steve Williams

Director

Appendix I - Morgan Park Monitoring Wells Permits

RECEIVED
MAR 17, 2017
S.C.V.W.D.
WELLS

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 3

TO BE COMPLETED BY DISTRICT

District Permit No.: C201703200I	Date Issued: 3-20-17	Well Registration No.:
Geologic Setting: 3	Expiration Date: 3-20-18	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Santa Clara Valley Water District	Property Owner: City of Campbell	Name of Business at Well Site: John D. Morgan Park, City of Campbell
Well Owner's Mailing Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Mailing Address: 70 North First Street City, State, Zip Campbell, CA 95008	**Address of Well Site:** APN 30529001 at NE corner Budd Ave & San Tomas City, State, Zip Campbell, CA 95008-2808
Telephone No. & Contact Name: 408-630-2051 Thomas Mohr	Telephone No. & Contact Name: 408-866-2150 Todd Capurso, Public Works Director	Telephone No.:

Owner's/Consultant's Well No.: LGRS-03

Assessor's Parcel No. of Well Site: Book 305 Page 29 Parcel 001

Consultant (Company): Todd Groundwater	Drilling Company: Cascade Drilling
Address: 2490 Mariner Square Loop, Suite 215	Address: PO Box 3421
City, State, Zip Alameda, CA 94501-1080	City, State, Zip Richmond, CA 94804
Telephone No.: 510-747-6920 x 111	Telephone No.: 415-377-5026 C-57 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Not Applicable (N/A)

Caseworker Name: N/A

Oversight Agency: N/A

Caseworker Telephone No.: N/A

Thomas Mohr
Signature of Responsible Professional

3/20/17
Date

Thomas V. Mohr
Print Name

(No substitution of signature will be accepted)

Civil Engineer Registration No.

OR

5583
Geologist Registration No.

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ~~☒~~ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: see attached email	Date:	Print Name of Property Owner/Agent: [District easement] Todd Capurso, Public Works Director, City of Campbell
Signature of Well Owner/Agent: Thomas Mohr	Date: 3/17/17	Print Name of Well Owner/Agent: Thomas Mohr, Santa Clara Valley Water District
Signature of Well Driller/Agent:	Date: 3/17/17	Print Name of Driller/Agent: Derek Walker, Cascade Drilling Inc.
Signature of Consultant/Agent: TODD Groundwater	Date: 03/17/17	Print Name of Consultant/Agent: Bill Motzer, Todd Groundwater

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 2 of 2

DISTRICT WELL PERMIT NO.: C201703120001

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal.** An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 3-20-17

Please allow 10 working days to process this application.

From: Thomas Mohr
Sent: Friday, March 17, 2017 3:50 PM
To: Erick Soderlund
Cc: Mike Duffy; Bill Cameron; Vanessa De La Piedra; Bassam Kassab
Subject: RE: Well permit question - does property owner need to sign well permit form for District well?

Erick –

Thanks very much for your quick attention to this question. I believe this will give Mike Duffy and his staff the confidence to vary their practice in case the City is not able to come to a decision to issue the permit before the point in construction when the District inspector must sign off on the well seal. I'll let you know how it works out.

Tom
(Acting Unit Manager, 3/13 to 3/17/17)

Santa Clara Valley Water District

THOMAS MOHR
SENIOR HYDROGEOLOGIST HG 98
Groundwater Monitoring and Analysis Unit
Water Supply Division
Water Utility Enterprise
Santa Clara Valley Water District
(408) 630-2051
tmohr@valleywater.org

From: Erick Soderlund
Sent: Friday, March 17, 2017 3:47 PM
To: Thomas Mohr <tmohr@valleywater.org>
Cc: Mike Duffy <mduffy@valleywater.org>; Bill Cameron <BCameron@valleywater.org>; Vanessa De La Piedra <vdelapiedra@valleywater.org>
Subject: RE: Well permit question - does property owner need to sign well permit form for District well?

Hi Tom,

On the Well Construction permit, the permittee is not clearly defined. However, I would say in this case the District is the permittee as it will be the owner and operator of the well at question. As the permittee, the District, and its agents, should be the ones complying with the permit conditions. The purpose for the landowner to sign, as I understand it, is to ensure that the well owner (and the District) have access to the well.

Since we already have an encroachment permit from the City and the District is acting as the permittee, I do not think it is necessary for the City to sign the permit. It would be preferable since my understanding is that other cities have sign the permit under similar circumstances, but not necessary.

In the absence of the signature, I would refer to the encroachment permit in the signature line and attach the encroachment permit to the Well Construction permit application.

Please let me know if you have any questions or concerns.

Erick

From: Thomas Mohr
Sent: Friday, March 17, 2017 2:35 PM
To: Erick Soderlund
Cc: Mike Duffy; Bill Cameron; Vanessa De La Piedra
Subject: Well permit question - does property owner need to sign well permit form for District well?

Hello Erick –

As I described in our brief conversation, the District is drilling monitoring wells in the City of Campbell's John D. Morgan Park parking lot on Budd Avenue. The District requires well permits for all wells, including its own. The standard well permit form requires a signature from the property owner. I met with the City Engineer this morning, and she expressed some reservations about signing the permit form, as they have already issued an encroachment permit for the project. Mike Duffy (Wells Unit Manager) requested I obtain a legal opinion of whether the property owner signature can be waived for a District well where property owner permission has already been secured through an encroachment permit.

I am sending:

1) Well Permit Form
2) Executed Encroachment Permit
3) City Council Resolution supporting the project
4) CEQA documentation

If you have any questions, please call me or Mike Duffy (x2743).

Thanks,

Tom

Santa Clara Valley Water District

THOMAS MOHR
SENIOR HYDROGEOLOGIST HG 98
Groundwater Monitoring and Analysis Unit
Water Supply Division
Water Utility Enterprise
Santa Clara Valley Water District
(408) 630-2051
tmohr@valleywater.org

RECEIVED
MAR 17, 2017
S.C.V.W.D.
WELLS

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 3

TO BE COMPLETED BY DISTRICT

District Permit No.: C20170320001	Date Issued: 3-20-17	Well Registration No.:
Geologic Setting: 3	Expiration Date: 3-20-19	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Santa Clara Valley Water District	Property Owner: City of Campbell	Name of Business at Well Site: John D. Morgan Park, City of Campbell
Well Owner's Mailing Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Mailing Address: 70 North First Street City, State, Zip Campbell, CA 95008	**Address of Well Site:** APN 30529001 at NE corner Budd Ave & San Tomas City, State, Zip Campbell, CA 95008-2808
Telephone No. & Contact Name: 408-630-2051 Thomas Mohr	Telephone No. & Contact Name: 408-866-2150 Todd Capurso, Public Works Director	Telephone No.:

Owner's/Consultant's Well No.: LGRS-04
Assessor's Parcel No. of Well Site: Book 305 Page 29 Parcel 001

Consultant (Company): Todd Groundwater	Drilling Company: Cascade Drilling
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501-1080	Address: PO Box 3421 City, State, Zip Richmond, CA 94804
Telephone No.: 510-747-6920 x 111	Telephone No.: 415-377-5026 C-57 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Not Applicable (N/A)	Caseworker Name:
Oversight Agency: Santa Clara Valley Water District	Caseworker Telephone No.:

Signature of Responsible Professional — Date: 3/20/17 — Print Name: Thomas K. Mohr (No substitution of signature will be accepted)

Civil Engineer Registration No. ______ OR Geologist Registration No. 5583

Estimated Depth of Completed Well: ☐ Less than 50 feet ☐ 50 to 300 feet ☒ Over 300 feet ☐ Other:____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE	☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
	☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent: [District easement] Todd Capurso, Public Works Director, City of Campbell
Signature of Well Owner/Agent: Thomas Mohr	Date: 3/17/17	Print Name of Well Owner/Agent: Thomas Mohr, Santa Clara Valley Water District
Signature of Well Driller/Agent:	Date: 3/17/17	Print Name of Driller/Agent: Derek Walker, Cascade Drilling Inc.
Signature of Consultant/Agent: Todd Groundwater	Date: 03/17/17	Print Name of Consultant/Agent: Bill Motzer Todd Groundwater

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

RECEIVED
MAR 17, 2017
S.C.V.W.D.
WELLS

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 3

TO BE COMPLETED BY DISTRICT

District Permit No.: C20170320001	Date Issued: 3-20-17	Well Registration No.:
Geologic Setting: 3	Expiration Date: 3-20-18	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Santa Clara Valley Water District	Property Owner: City of Campbell	Name of Business at Well Site: John D. Morgan Park, City of Campbell
Well Owner's Mailing Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Mailing Address: 70 North First Street City, State, Zip Campbell, CA 95008	Address of Well Site: APN 30529001 at NE corner Budd Ave & San Tomas City, State, Zip Campbell, CA 95008-2808
Telephone No. & Contact Name: 408-630-2051 Thomas Mohr	Telephone No. & Contact Name: 408-866-2150 Todd Capurso, Public Works Director	Telephone No.:

Owner's/Consultant's Well No.: LGRS-05

Assessor's Parcel No. of Well Site: Book 305 Page 29 Parcel 001

Consultant (Company): Todd Groundwater	Drilling Company: Cascade Drilling
Address: 2490 Mariner Square Loop, Suite 215	Address: PO Box 3421
City, State, Zip Alameda, CA 94501-1080	City, State, Zip Richmond, CA 94804
Telephone No.: 510-747-6920 x 111	Telephone No.: 415-377-5026 C-57 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Not Applicable (N/A)	Caseworker Name: N/A
Oversight Agency: N/A	Caseworker Telephone No.: N/A

Thomas H Mohr 3/20/17 Thomas K. Mohr

Signature of Responsible Professional Date Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No. OR 5583 Geologist Registration No.

Estimated Depth of Completed Well: ☐ Less than 50 feet ☐ 50 to 300 feet ☒ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

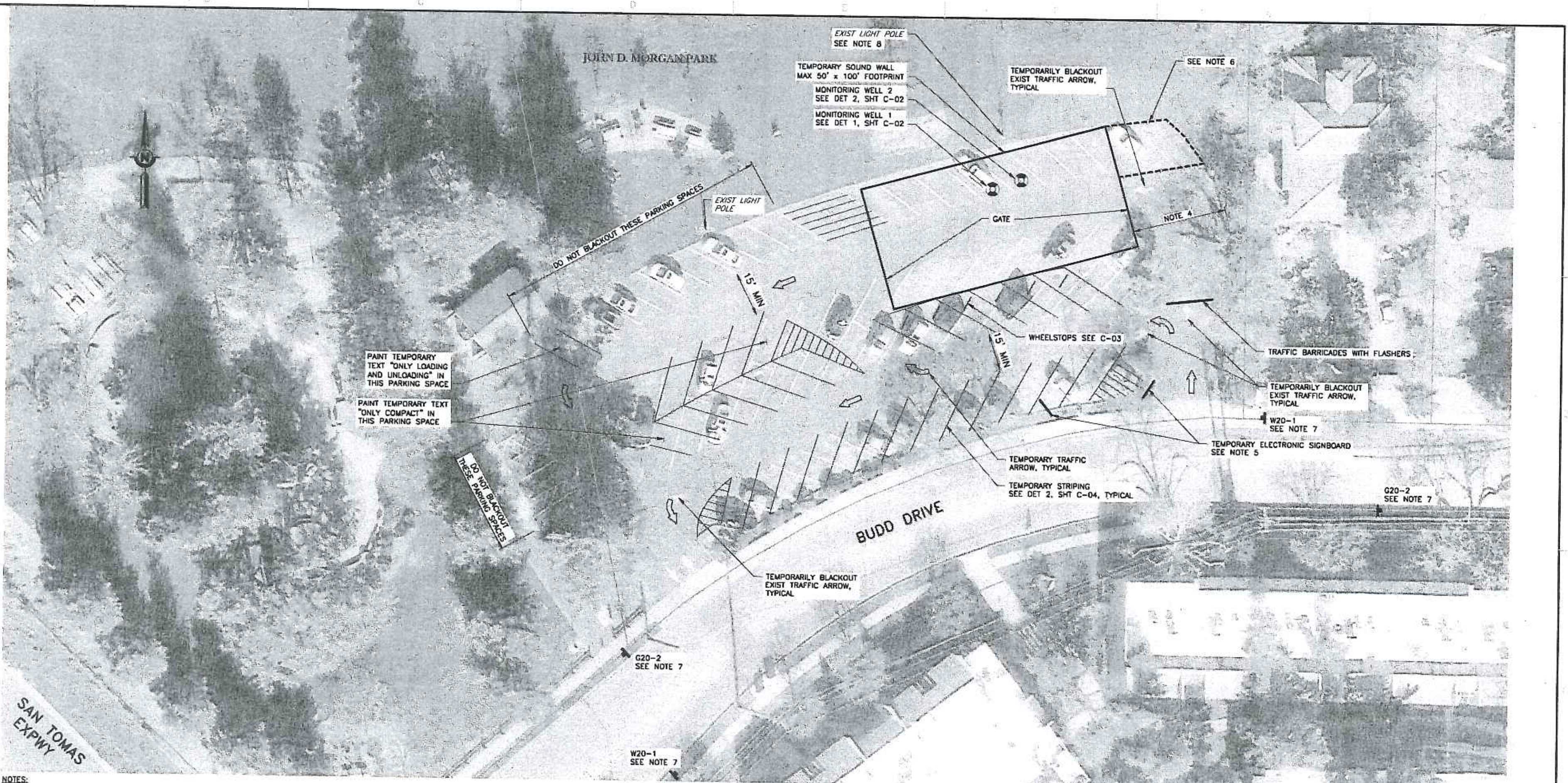
SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent: [District Easement] Todd Capurso, Public Works Director, City of Campbell
Signature of Well Owner/Agent: Thomas Mohr	Date: 3/17/17	Print Name of Well Owner/Agent: Thomas Mohr, Santa Clara Valley Water District
Signature of Well Driller/Agent: Derek Walker	Date: 3/17/17	Print Name of Driller/Agent: Derek Walker, Cascade Drilling Inc.
Signature of Consultant/Agent: William E. Motzer	Date: 03/17/17	Print Name of Consultant/Agent: Bill Motzer, Todd Groundwater

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

USERNAME: Patrkey 10/19/2016 10:49 AM
FILENAME: K:\Active Projects\MP-91304001\JOHN D MORGAN PARK MONITORING WELLS\SHEETS\C-01.dwg


JOHN D. MORGAN PARK
EXIST LIGHT POLE SEE NOTE 8
TEMPORARY SOUND WALL MAX 50' x 100' FOOTPRINT
MONITORING WELL 2 SEE DET 2, SHT C-02
MONITORING WELL 1 SEE DET 1, SHT C-02
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
SEE NOTE 6
DO NOT BLACKOUT THESE PARKING SPACES
EXIST LIGHT POLE
GATE
NOTE 4
15' MIN
15' MIN
WHEELSTOPS SEE C-03
TRAFFIC BARRICADES WITH FLASHERS
PAINT TEMPORARY TEXT "ONLY LOADING AND UNLOADING" IN THIS PARKING SPACE
PAINT TEMPORARY TEXT "ONLY COMPACT" IN THIS PARKING SPACE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
W20-1 SEE NOTE 7
TEMPORARY ELECTRONIC SIGNBOARD SEE NOTE 5
TEMPORARY TRAFFIC ARROW, TYPICAL
TEMPORARY STRIPING SEE DET 2, SHT C-04, TYPICAL
G20-2 SEE NOTE 7
DO NOT BLACKOUT THESE PARKING SPACES
BUDD DRIVE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
G20-2 SEE NOTE 7
SAN TOMAS EXPWY
W20-1 SEE NOTE 7

NOTES:

1. SURVEY EXISTING PARKING LOT STRIPING PRIOR TO WORK. FINAL STRIPING PLAN AFTER COMPLETION OF WORK SHALL MATCH EXISTING.
2. TEMPORARILY PAINT OUT (BLACKOUT) FOUR EXISTING TRAFFIC ARROWS AND EXISTING PARKING STRIPING WITH BLACK TRAFFIC PAINT UNLESS SHOWN NOT TO BE BLACKED OUT (54 PARKING SPACES TO BE PAINTED OUT).
3. TEMPORARILY PAINT TRAFFIC FLOW ARROWS AND PARKING STRIPING WITH WHITE TRAFFIC PAINT (30 TEMPORARY PARKING SPACES PAINTED IN).
4. CONFIRM SPACE REQUIRED FOR CONSTRUCTION VEHICLE TURNING INTO SOUND WALL WORK AREA PRIOR TO SOUND WALL CONSTRUCTION.
5. COORDINATE WITH CITY OF CAMPBELL TO LOCATE SIGNBOARD FOR TEMPORARY SHUTOFF OF IRRIGATION DEVICES AROUND ELECTRONIC SIGNBOARD. PROVIDE SUPPORTING PLATFORM AS NECESSARY TO LEVEL AND RAISE SIGNBOARD TO APPROPRIATE HEIGHTS AS DETERMINED IN THE FIELD BY THE CITY OF CAMPBELL REPRESENTATIVE.
6. CONTRACTOR STAGING SHALL BE WITHIN SOUNDWALL OR THE AREA TO THE NORTH EAST OF THE SOUND WALL AS SHOWN IN PLAN.
7. SIGNAGE SHALL BE PER CAMUTCD (CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES). W20-1 IS STANDARD SIGN FOR "ROAD WORK AHEAD". G20-2 IS STANDARD SIGN FOR "END ROAD WORK". COORDINATE WITH CITY OF CAMPBELL ON ACCEPTABLE INSTALLATION METHOD AND LOCATION.
8. TEMPORARILY REMOVE EXISTING LIGHT POLE PRIOR TO SOUND WALL INSTALLATION AND REINSTALL AFTER REMOVAL OF SOUNDWALL. COORDINATE LIGHT POLE REMOVAL AND REINSTALLATION WITH CITY OF CAMPBELL.

SITE PLAN

SCALE: 1" = 20'

DOCUMENT NUMBER: BUD-C-9265-57974

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES
				MAP DATA: GOOGLE, IMAGERY DATE: 1/31/2016

DATE	10/19/2016
DESIGN	T. MOHR/ D. LEE
DRAWN	S. KAROGLOU
CHECKED	K. UYEDA

ENGINEERING CERTIFICATION

DOUG LEE
No. 74001

PROJECT ENGINEER DATE

Santa Clara Valley Water District

PROJECT NAME AND SHEET DESCRIPTION:

JOHN D. MORGAN PARK
MONITORING WELLS PROJECT

SITE PLAN

SCALE	AS SHOWN
VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	
PROJECT NUMBER	91304001
SHEET CODE:	C-01
SHEET NUMBER:	3 OF 5

Print Form

CITY OF CAMPBELL
DEPT. OF PUBLIC WORKS
70 North First Street
Campbell, CA 95008
Ph. (408) 866-2150
Fx. (408) 376-0958

ENCROACHMENT PERMIT
(for working within the public right-of-way)

Issued 2/7/17

Permit Expiration Date 2/7/18

Permit No ENC 2017-00049
X-Ref. File
Application Date 2/3/17
Application Expiration Date 8/7/17
APN

APPLICATION - Application is hereby made for a Public Works Permit in accordance with Campbell Municipal Code, Section 11.04. (Application expires in six (6) months if the permit is not issued. Application Fee is non-refundable.)

A. Work Address or Tract No.: 540 W Rincon Ave Campbell, CA

Utility Trench Location:

B. Nature of Work: Environmental Drilling - Monitoring Well Installation

C. Attach four (4) copies of an engineered plan showing the location and extent of the work, and four (4) copies of the preliminary Engineer's Estimate of work. The plans shall show the relation of the proposed work to existing surface and underground improvements. When approved by the City Engineer, said plan becomes a part of this permit.

D. All work shall conform to the City of Campbell Standard Specifications and Details for Public Works Construction; the General Permit Conditions listed on the reverse side; and the Special Provisions for this permit, listed below. Failure to abide by these conditions and provisions may result in job shutdown and/or forfeiture of Faithful Performance Sureties and cash deposits. (See General Permit Conditions 1 and 2.)

E. The Contractor must have this permit and approved plans at the site and must notify the Public Works Department at least two days before starting work. Notice must be given to Public Works at least 24 hours before restarting any work.

Name of Applicant: Cascade Drilling, L.P. Telephone: (916) 403-7728

Address: 3000 Duluth Street West Sacramento, CA 95691

E-Mail Address: ttaber@cascade-env.com 24-HOUR EMERGENCY PHONE NUMBER: 530-315-6900

Is this work being done by the property owners at their own residence? ☐ YES ☒ NO

The Applicant/Permittee hereby agrees by affixing their signature to this permit to hold the City of Campbell, its officers, agents, and employees free, safe and harmless from any claim or demand for damages resulting from the work covered by this permit.

The Applicant/Permittee hereby acknowledges that they have read and understand both the front and back of this permit, and they will inform their contractor(s) of the information. Applicant is advised that upon issuance of this permit, property owner, or property owner's successors, shall be responsible for any and all damages arising out of the condition of any private improvements in the public right-of-way.

Accepted: Ralph McGahey, CDLP (Applicant Permittee) (Sign) 02/06/17 Date

Cascade Drilling, L.P. (Contractor) Ralph McGahey (Print Name) 02/06/17 Date

SPECIAL PROVISIONS:

____ 1. **Street shall not be open cut for underground installations. Minimum cuts *may* be allowed for connections or exploration holes. Such cuts *may be specifically approved by the Inspector prior to cutting.***

____ 2. **Pavement may be cut for underground installations and must be restored in accordance with the Standard Details Trench Restoration Method "A", unless otherwise approved by the Engineer.**

____ 3. **Work to be staked by a licensed Land Surveyor or Civil Engineer and two (2) copies of the cut sheets sent to the Public Works Department before starting work.**

✓ 4. **Per Section 4216 of the Government Code this permit is not valid for excavations until Underground Service Alert (USA) has been notified and the inquiry identification number has been entered hereon. USA Phone: 1-800-227-2600. USA TICKET NO.____**

____ 5. **Prior to any work, the property owner shall execute an Agreement for Private Improvements in the Public Right-of-Way, which shall be recorded.**

____ 6. **Public Notification Requirements:____**

____ 7. ____

SEE PUBLIC WORKS FEE SCHEDULE FOR CURRENT FEES	AMOUNT	RECEIPT NO.
PERMIT APPLICATION FEE	$ 434 -	
PLAN CHECK DEPOSIT	$	
SECURITY FOR FAITHFUL PERFORMANCE/LABOR & MATERIALS	$	
CONSTRUCTION CASH DEPOSIT	$	
PLAN CHECK & INSPECTION FEE	$ 20,000 -	
EMERGENCY PERMIT FEE	$	

APPROVED FOR ISSUANCE For City Engineer 2/7/17 Date

[illegible] 12 Months After Date of Issuance

City
Council
Report

Item:
Category: New Business
Meeting Date: August 18, 2015

TITLE: **Authorization to Negotiate Issuance of Encroachment Permit and Permanent Easement to Santa Clara Valley Water District for Construction and Operation of Monitoring Wells in John D. Morgan Park**

RECOMMENDATION

That the City Council authorize the City Manager to negotiate issuance of an Encroachment Permit and a permanent access and operations easement to Santa Clara Valley Water District for construction and operation of Monitoring Wells in John D. Morgan Park.

BACKGROUND

Santa Clara Valley Water District (SCVWD) staff has requested that the City of Campbell authorize the construction of permanent deep groundwater monitoring wells in the Budd Avenue parking lot area at John D. Morgan Park. The monitoring wells are necessary for the District to evaluate the feasibility of constructing injection wells in this vicinity for the purpose of introducing purified recycled water to replenish groundwater losses and to permanently monitor groundwater conditions. The SCVWD's request is attached as Exhibit A.

DISCUSSION

City staff from the Departments of Public Works and Recreation and Community Services met with District staff at the proposed construction site and believe that this important project can be constructed and operated successfully at this location with minimum disruption to the adjacent neighborhood and park recreation programs.

SCVWD has provided information indicating that noise generated during the estimated two months construction of the monitoring wells will not exceed levels allowed by Campbell Municipal Code construction noise limitations. The 7 a.m. – 6 p.m. proposed hours of construction exceed the normal 8 a.m. – 5 p.m. hours allowed but could be approved by the City, if determined necessary. This issue will be closely reviewed as a part of the Encroachment Permit preparation.

FISCAL IMPACT

None at this time

ALTERNATIVES

Do not authorize the City Manager to negotiate issuance of an Encroachment Permit

Prepared by: Bill Helms
Bill Helms, Executive Project Manager

Reviewed by: Michelle Quinney
Michelle Quinney, City Engineer

Reviewed by: Todd Capurso by MQ
Todd Capurso, Public Works Director

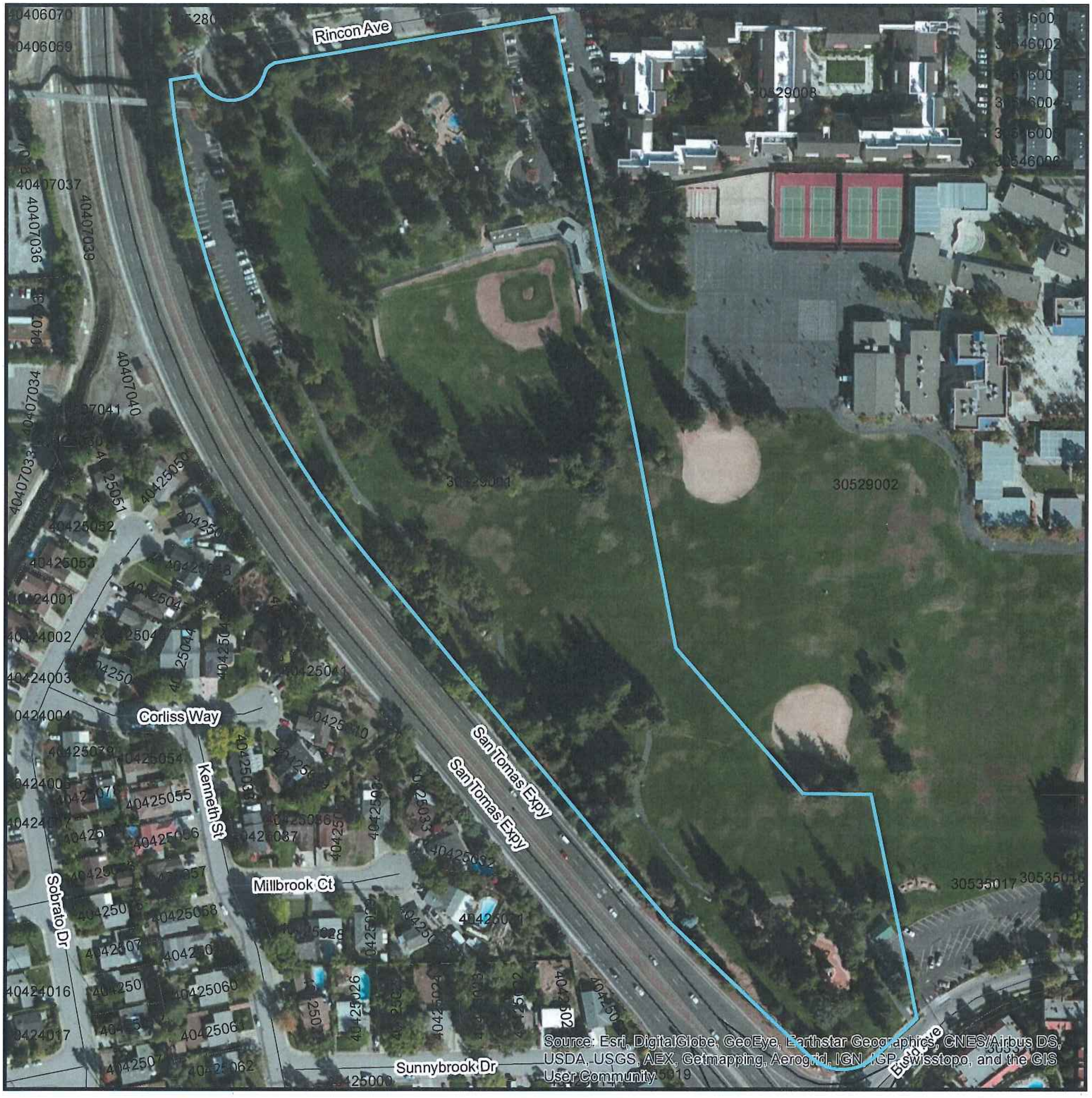
Approved by:
Mark Linder, City Manager

Attachment: Exhibit A – SCVWD Project Proposal

JOHN D MORGAN PARK

APN 305-29-001
NORTH EAST CORNER OF BUDD AVE AND SAN TOMAS
CAMPBELL, CA 95008-2808

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Approximate Scale

0 650 1,300 Feet

Wells

⊕ A01: Water Supply - Active
▣ S: Water Supply - Standby
■ IS01: Water Supply - Inactive
⊕ A02: Extraction (Env) - Active
■ I02: Extraction (Env) - Inactive
⊕ A: Other - Active
■ I: Other - Inactive
✱ B: Abandoned
⊕ D: Destroyed
▲ Undet: Status Undetermined
▭ Parcels

3/20/2017

RECEIVED
MAR 17, 2017
S.C.V.W.D.
WELLS

Santa Clara Valley Water District

5750 Almaden Expressway
San Jose, CA 951[illegible]
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 3

TO BE COMPLETED BY DISTRICT

District Permit No.: C20170320002	Date Issued: 3-20-17	Well Registration No.:
Geologic Setting: 3	Expiration Date: 3-20-18	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Santa Clara Valley Water District	Property Owner: City of Campbell	Name of Business at Well Site: John D. Morgan Park, City of Campbell
Well Owner's Mailing Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Mailing Address: 70 North First Street City, State, Zip Campbell, CA 95008	Address of Well Site: APN 30529001 at NE corner Budd Ave & San Tomas City, State, Zip Campbell, CA 95008-2808
Telephone No. & Contact Name: 408-630-2051 Thomas Mohr	Telephone No. & Contact Name: 408-866-2150 Todd Capurso, Public Works Director	Telephone No.:

Owner's/Consultant's Well No.: LGRS-01

Assessor's Parcel No. of Well Site: Book 305 Page 29 Parcel 001

Consultant (Company): Todd Groundwater	Drilling Company: Cascade Drilling
Address: 2490 Mariner Square Loop, Suite 215 City, State, Zip Alameda, CA 94501-1080	Address: PO Box 3421 City, State, Zip Richmond, CA 94804
Telephone No.: 510-747-6920 x 111	Telephone No.: 415-377-5026 C-57 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Not Applicable (N/A)
Caseworker Name: N/A
Oversight Agency: N/A
Caseworker Telephone No.: N/A

Signature of Responsible Professional
Date 3/20/17
Print Name Thomas K. Mohr
(No substitution of signature will be accepted)

Civil Engineer Registration No.
OR
Geologist Registration No. 5583 TKM

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☒ Over 300 feet ☐ Other: ____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*

*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent: see attached email	Date:	Print Name of Property Owner/Agent: [District easement[Todd Capurso, Public Works Director, City of Campbell
Signature of Well Owner/Agent:	Date: 3/17/17	Print Name of Well Owner/Agent: Thomas Mohr, SCVWD
Signature of Well Driller/Agent:	Date: 3/17/17	Print Name of Driller/Agent: Derek Walker, Cascade Drilling
Signature of Consultant/Agent: Todd Groundwater	Date: 03/17/17	Print Name of Consultant/Agent: Bill Motzer, Todd Groundwater

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annular seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 2 of 2

DISTRICT WELL PERMIT NO.: C20170320002

Based on information on this application and attachment(s) hereto (if any) and subject to approval noted below, permission is hereby granted to construct (drill) the described well. Permission to start work may be withheld until a field check verifies all statements made on application by permittee and is also subject to the "General" and "Special" Conditions stated below.

SANTA CLARA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH APPROVAL (Water Supply Well Only)

NOTE: Department of Environmental Health approval must be granted before this application will be accepted by Santa Clara Valley Water District.

Approved by: , R.E.H.S	☐ Approved as submitted ☐ Approved as corrected
	Date:

SITE PLAN

A 8½" x 11" paper site plan **must** be attached to this application, including:

1. Location of site features, including major buildings, landscaped areas, tank fields, existing wells, etc.
2. North arrow and scale
3. Location of proposed well with dimensions in feet from well to nearest cross streets.

GENERAL CONDITIONS

A. **District** (telephone 408-265-2607, ext. 2660) **must be notified a minimum of one working day before construction of the annular seal**. An authorized District representative must be on site to witness the construction of the annular seal. This requirement may be waived by an authorized District representative. If the District waives the inspection requirement, the District may request the permittee(s) to furnish certification, under penalty of perjury, that the well was constructed in accordance with the District Well Standards and with the permit conditions.

B. Permittee agrees to construct, operate, and maintain the well according to provisions of the latest District Ordinance and the latest published revisions of District Well Standards to the end that this well will not cause pollution or contamination of groundwater or otherwise jeopardize the health, safety, or welfare of the people of the District.

C. This permit is valid only for the purpose specified herein. Well construction methods authorized under this permit may not be changed except by written approval of an authorized District representative, and only if the District believes that such a change will result in equal or superior compliance with the District and State Well Standards (e.g., if the District representative finds that site conditions warrant such a change).

D. This permit is only valid for the Assessor's Parcel No. indicated on it.

E. This permit may be voided if it contains incorrect information. If the permit is voided after work has begun, the well or boring that was constructed under this permit must be destroyed in accordance with District and State Well Standards.

F. If any work associated with this permit will take place on District property/easement, an encroachment or construction permit must be granted by the District's Community Projects Review Unit (telephone 408-265-2607, ext. 2589).

G. Before the well constructed under this permit can be used as a drinking water source, its use must be approved by the regulatory agency with authority over such use (typically the Santa Clara County Department of Environmental Health or the State of California Department of Public Health). A completed Well Inventory Form must also be approved.

H. If the well constructed under this permit cannot be or is not being used for its intended purpose, permittee is hereby required to destroy the well according to the District Well Standards and under permit from the District. Any test holes drilled under this permit must be destroyed within 24 hours of completion of testing activities. Destruction activities must be completed according to District standards. District must be notified a minimum of 24 hours prior to destruction.

I. Within 30 days of the completion of the well construction activities, the driller or consultant identified on this permit shall fully complete State of California DWR Form 188 and mail the original to the District's Wells and Water Production Unit.

J. The permittee(s) shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend, and hold the District, its officers, agents, and employees, free and harmless from any and all expense, cost, and liability in connection with or resulting from the granting or exercise of this permit including, but not limited to, property damage, personal injury, and wrongful death.

K. Permittees are required to be in full compliance with Cal/OSHA California Labor Code Section 6300.

L. A current C-57 Water Well Drilling Contractor's License is required for the construction of all wells.

M. Permittee, permittee's contractors, consultants, or agents shall be responsible to assure that all materials or waters generated during drilling, well construction, well development, pump testing, or other activities associated with this permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed.

N. The driller and consultants (if applicable) shall have an active copy of their Worker's Compensation Insurance on file with District.

O. This permit shall expire if not exercised within 180 calendar days of its approval, unless an extension of the permit expiration date is granted by an authorized District representative.

P. This permit must be kept on site during all activities associated with it and shall immediately be presented to an authorized District representative upon request.

Q. Permittee shall notify Underground Service Alert (USA) at 1-800-227-2600 or 811 prior to any digging.

SPECIAL CONDITIONS

Community Projects Review Unit Approval (if needed):	CPRU Permit No.:
Approved by:	Date: 3-20-17

Please allow 10 working days to process this application.

Bill Cameron

From: Thomas Mohr
Sent: Friday, March 17, 2017 3:50 PM
To: Erick Soderlund
Cc: Mike Duffy; Bill Cameron; Vanessa De La Piedra; Bassam Kassab
Subject: RE: Well permit question - does property owner need to sign well permit form for District well?

Erick –

Thanks very much for your quick attention to this question. I believe this will give Mike Duffy and his staff the confidence to vary their practice in case the City is not able to come to a decision to issue the permit before the point in construction when the District inspector must sign off on the well seal. I'll let you know how it works out.

Tom
(Acting Unit Manager, 3/13 to 3/17/17)

Santa Clara Valley
Water District

THOMAS MOHR
SENIOR HYDROGEOLOGIST HG 98
Groundwater Monitoring and Analysis Unit
Water Supply Division
Water Utility Enterprise
Santa Clara Valley Water District
(408) 630-2051
tmohr@valleywater.org

From: Erick Soderlund
Sent: Friday, March 17, 2017 3:47 PM
To: Thomas Mohr <tmohr@valleywater.org>
Cc: Mike Duffy <mduffy@valleywater.org>; Bill Cameron <BCameron@valleywater.org>; Vanessa De La Piedra <vdelapiedra@valleywater.org>
Subject: RE: Well permit question - does property owner need to sign well permit form for District well?

Hi Tom,

On the Well Construction permit, the permittee is not clearly defined. However, I would say in this case the District is the permittee as it will be the owner and operator of the well at question. As the permittee, the District, and its agents, should be the ones complying with the permit conditions. The purpose for the landowner to sign, as I understand it, is to ensure that the well owner (and the District) have access to the well.

Since we already have an encroachment permit from the City and the District is acting as the permittee, I do not think it is necessary for the City to sign the permit. It would be preferable since my understanding is that other cities have sign the permit under similar circumstances, but not necessary.

In the absence of the signature, I would refer to the encroachment permit in the signature line and attach the encroachment permit to the Well Construction permit application.

Please let me know if you have any questions or concerns.

Erick

From: Thomas Mohr
Sent: Friday, March 17, 2017 2:35 PM
To: Erick Soderlund
Cc: Mike Duffy; Bill Cameron; Vanessa De La Piedra
Subject: Well permit question - does property owner need to sign well permit form for District well?

Hello Erick –

As I described in our brief conversation, the District is drilling monitoring wells in the City of Campbell's John D. Morgan Park parking lot on Budd Avenue. The District requires well permits for all wells, including its own. The standard well permit form requires a signature from the property owner. I met with the City Engineer this morning, and she expressed some reservations about signing the permit form, as they have already issued an encroachment permit for the project. Mike Duffy (Wells Unit Manager) requested I obtain a legal opinion of whether the property owner signature can be waived for a District well where property owner permission has already been secured through an encroachment permit.

I am sending:

1) Well Permit Form
2) Executed Encroachment Permit
3) City Council Resolution supporting the project
4) CEQA documentation

If you have any questions, please call me or Mike Duffy (x2743).

Thanks,

Tom

Santa Clara Valley Water District

THOMAS MOHR
SENIOR HYDROGEOLOGIST HG 98
Groundwater Monitoring and Analysis Unit
Water Supply Division
Water Utility Enterprise
Santa Clara Valley Water District
(408) 630-2051
tmohr@valleywater.org

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
(408) 265-2600

RECEIVED
MAR 1 7, 2017
S.C.V.W.D.
WELLS

WELL CONSTRUCTION APPLICATION

FC 158 (03-26-15)
Page 1 of 3

TO BE COMPLETED BY DISTRICT

District Permit No.: C20170320002	Date Issued: 3-20-17	Well Registration No.:
Geologic Setting: 3	Expiration Date: 3-20-18	Driller's Log No.:

TO BE COMPLETED BY OWNER AND DRILLER

Well Owner: Santa Clara Valley Water District	Property Owner: City of Campbell	Name of Business at Well Site: John D. Morgan Park, City of Campbell
Well Owner's Mailing Address: 5750 Almaden Expressway City, State, Zip San Jose, CA 95118	Property Owner's Mailing Address: 70 North First Street City, State, Zip Campbell, CA 95008	**Address of Well Site:** APN 30529001 at NE corner Budd Ave & San Tomas City, State, Zip Campbell, CA 95008-2808
Telephone No. & Contact Name: 408-630-2051 Thomas Mohr	Telephone No. & Contact Name: 408-866-2150 Todd Capurso, Public Works Director	Telephone No.:

Owner's/Consultant's Well No.: LGRS-02
Assessor's Parcel No. of Well Site: Book 305 Page 29 Parcel 001

Consultant (Company): Todd Groundwater	Drilling Company: Cascade Drilling
Address: 2490 Mariner Square Loop, Suite 215	Address: PO Box 3421
City, State, Zip Alameda, CA 94501-1080	City, State, Zip Richmond, CA 94804
Telephone No.: 510-747-6920 x 111	Telephone No.: 415-377-5026 C-57 License No.: 938110
☐ Check if address or phone number has changed	☐ Check if address or phone number has changed

THIS SECTION TO BE COMPLETED FOR ALL MONITORING WELLS OR EXTRACTION/RECOVERY WELLS

Case Name/No.: Not Applicable (N/A)	Caseworker Name: N/A
Oversight Agency: N/A	Caseworker Telephone No.: N/A

Thomas K Mohr 3/20/17 Thomas K. Mohr
Signature of Responsible Professional Date Print Name (No substitution of signature will be accepted)

Civil Engineer Registration No. OR 5583 Geologist Registration No. TM

Estimated Depth of Completed Well: ☐ Less than 50 feet ☒ 50 to 300 feet ☒ Over 300 feet ☐ Other:____

Well is to be constructed: ☐ In a public sidewalk ☐ In a public road ☒ On public property ☐ On private property ☐ On District property/easement*
*See General Condition F, page 2

WELL TYPE/USE

☐ WATER PRODUCTION	☒ MONITORING	☐ REMEDIATION	☐ DEWATERING	☐ HEAT EXCHANGE	☐ INJECTION	☐ CATHODIC PROTECTION	☐ OTHER
☐ Agricultural ☐ Domestic ☐ Industrial ☐ Municipal	☒ GW Level ☒ GW Quality ☐ Inclinometer ☐ Vapor ☐ Other	☐ Air Sparge ☐ GW Extraction ☐ Material Emplacement ☐ Vapor Extraction ☐ Other	☐ Permanent ☐ Temporary	☐ Closed Loop ☐ Open Loop	☐ Groundwater Cleanup Reinjection ☐ Stormwater ☐ Water Supply Recharge ☐ Other		

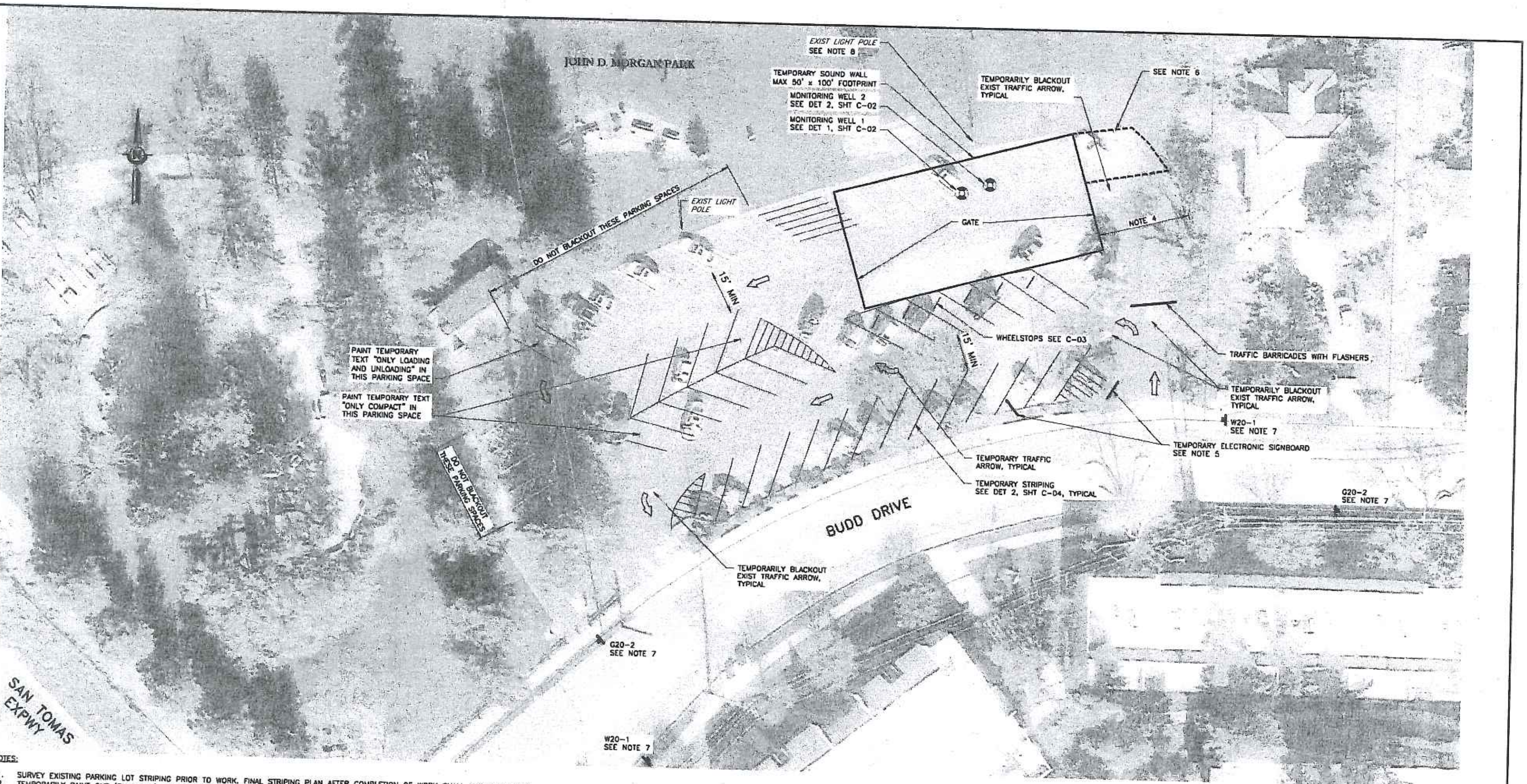
Other wells exist on this property? ☐ Yes ☒ No If yes, status: ☐ Active ☐ Inactive ☐ Abandoned

SIGNATURES

I understand and agree that all work associated with this permit is required to be done in accordance with Santa Clara Valley Water District (District) Well Ordinance 90-1, the District Well Standards, and the conditions of this permit (see page 2). I certify that the information given in this permit is correct to the best of my knowledge and that the signature below, whether original, electronic, or photocopied, is authorized and valid, and is affixed with the intent to be enforceable. I also certify that a right of entry/encroachment agreement has been formalized between the well owner and property owner, if parties differ. I also understand that it is my responsibility, as the well owner, to notify the District of any changes in the purpose of this well, from which, is indicated on this application.

Signature of Property Owner/Agent:	Date:	Print Name of Property Owner/Agent: [District Easement] Todd Capurso, Public Works Director, City of Campbell
Signature of Well Owner/Agent: Thomas Mohr	Date: 3/17/17	Print Name of Well Owner/Agent: Thomas Mohr, Santa Clara Valley Water District
Signature of Well Driller/Agent:	Date: 3/17/17	Print Name of Driller/Agent: Derek Walker, Cascade Drilling Inc.
Signature of Consultant/Agent: TODD Groundwater	Date: 03/17/17	Print Name of Consultant/Agent: Bill Motzer, Todd Groundwater

IMPORTANT: A minimum 24-hour notice must be given to Santa Clara Valley Water District Well Inspection Department prior to installing the annual seal. Call (408) 265-2607, ext. 2660. Please allow 10 working days to process permit application.


JOHN D. MORGAN PARK
EXIST LIGHT POLE SEE NOTE 8
TEMPORARY SOUND WALL MAX 50' x 100' FOOTPRINT
MONITORING WELL 2 SEE DET 2, SHT C-02
MONITORING WELL 1 SEE DET 1, SHT C-02
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
SEE NOTE 6
DO NOT BLACKOUT THESE PARKING SPACES
EXIST LIGHT POLE
GATE
NOTE 4
15' MIN
15' MIN
WHEELSTOPS SEE C-03
TRAFFIC BARRICADES WITH FLASHERS
PAINT TEMPORARY TEXT "ONLY LOADING AND UNLOADING" IN THIS PARKING SPACE
PAINT TEMPORARY TEXT "ONLY COMPACT" IN THIS PARKING SPACE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
W20-1 SEE NOTE 7
TEMPORARY ELECTRONIC SIGNBOARD SEE NOTE 5
DO NOT BLACKOUT THESE PARKING SPACES
TEMPORARY TRAFFIC ARROW, TYPICAL
TEMPORARY STRIPING SEE DET 2, SHT C-04, TYPICAL
G20-2 SEE NOTE 7
BUDD DRIVE
TEMPORARILY BLACKOUT EXIST TRAFFIC ARROW, TYPICAL
G20-2 SEE NOTE 7
SAN TOMAS EXPWY
W20-1 SEE NOTE 7

SITE PLAN

SCALE: 1" = 20'

NOTES:

1. SURVEY EXISTING PARKING LOT STRIPING PRIOR TO WORK. FINAL STRIPING PLAN AFTER COMPLETION OF WORK SHALL MATCH EXISTING.
2. TEMPORARILY PAINT OUT (BLACKOUT) FOUR EXISTING TRAFFIC ARROWS AND EXISTING PARKING STRIPING WITH BLACK TRAFFIC PAINT UNLESS SHOWN NOT TO BE BLACKED OUT (54 PARKING SPACES TO BE PAINTED OUT).
3. TEMPORARILY PAINT TRAFFIC FLOW ARROWS AND PARKING STRIPING WITH WHITE TRAFFIC PAINT (30 TEMPORARY PARKING SPACES PAINTED IN).
4. CONFIRM SPACE REQUIRED FOR CONSTRUCTION VEHICLE TURNING INTO SOUND WALL WORK AREA PRIOR TO SOUND WALL CONSTRUCTION.
5. COORDINATE WITH CITY OF CAMPBELL TO LOCATE SIGNBOARD FOR TEMPORARY SHUTOFF OF IRRIGATION DEVICES AROUND ELECTRONIC SIGNBOARD. PROVIDE SUPPORTING PLATFORM AS NECESSARY TO LEVEL AND RAISE SIGNBOARD TO APPROPRIATE HEIGHTS AS DETERMINED IN THE FIELD BY THE CITY OF CAMPBELL REPRESENTATIVE.
6. CONTRACTOR STAGING SHALL BE WITHIN SOUNDWALL OR THE AREA TO THE NORTH EAST OF THE SOUND WALL AS SHOWN IN PLAN.
7. SIGNAGE SHALL BE PER CAMUTCD (CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES). W20-1 IS STANDARD SIGN FOR "ROAD WORK AHEAD". G20-2 IS STANDARD SIGN FOR "END ROAD WORK". COORDINATE WITH CITY OF CAMPBELL ON ACCEPTABLE INSTALLATION METHOD AND LOCATION.
8. TEMPORARILY REMOVE EXISTING LIGHT POLE PRIOR TO SOUND WALL INSTALLATION AND REINSTALL AFTER REMOVAL OF SOUNDWALL. COORDINATE LIGHT POLE REMOVAL AND REINSTALLATION WITH CITY OF CAMPBELL.

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES
				MAP DATA: GOOGLE, IMAGERY DATE: 1/31/2016

DATE	10/19/2016
DESIGN	T. MOHR/ D. LEE
DRAWN	S. KAROGLOU
CHECKED	K. UYEDA

ENGINEERING CERTIFICATION

DOUG LEE No. 74001

PROJECT ENGINEER DATE

Santa Clara Valley Water District

PROJECT NAME AND SHEET DESCRIPTION:

JOHN D. MORGAN PARK MONITORING WELLS PROJECT

SITE PLAN

SCALE: AS SHOWN

VERIFY SCALES

0 1"

BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 91304001

SHEET CODE: C-01

SHEET NUMBER: 3 OF 5

Print Form

CITY OF CAMPBELL
DEPT. OF PUBLIC WORKS
70 North First Street
Campbell, CA 95008
Ph. (408) 866-2150
Fx. (408) 376-0958

ENCROACHMENT PERMIT
(for working within the public right-of-way)

Issued 2/7/17

Permit Expiration Date 2/7/18

Permit No ENC 2017-00049
X-Ref. File
Application Date 2/3/17
Application Expiration Date 8/7/17
APN

APPLICATION - Application is hereby made for a Public Works Permit in accordance with Campbell Municipal Code, Section 11.04 (Application expires in six (6) months if the permit is not issued. Application Fee is non-refundable.)

A. Work Address or Tract No.: 540 W Rincon Ave Campbell, CA

Utility Trench Location:

B. Nature of Work: Environmental Drilling - Monitoring Well Installation

C. Attach four (4) copies of an engineered plan showing the location and extent of the work, and four (4) copies of the preliminary Engineer's Estimate of work. The plans shall show the relation of the proposed work to existing surface and underground improvements. When approved by the City Engineer, said plan becomes a part of this permit.

D. All work shall conform to the City of Campbell Standard Specifications and Details for Public Works Construction; the General Permit Conditions listed on the reverse side; and the Special Provisions for this permit, listed below. Failure to abide by these conditions and provisions may result in job shutdown and/or forfeiture of Faithful Performance Sureties and cash deposits. (See General Permit Conditions 1 and 2.)

E. The Contractor must have this permit and approved plans at the site and must notify the Public Works Department at least two days before starting work. Notice must be given to Public Works at least 24 hours before restarting any work.

Name of Applicant: Cascade Drilling, L.P.
Telephone: (916) 403-7728

Address: 3000 Duluth Street West Sacramento, CA 95691

E-Mail Address: ttaber@cascade-env.com
24-HOUR EMERGENCY PHONE NUMBER: 530-315-6900

Is this work being done by the property owners at their own residence? ☐ YES ☒ NO

The Applicant/Permittee hereby agrees by affixing their signature to this permit to hold the City of Campbell, its officers, agents, and employees free, safe and harmless from any claim or demand for damages resulting from the work covered by this permit.

The Applicant/Permittee hereby acknowledges that they have read and understand both the front and back of this permit, and they will inform their contractor(s) of the information. Applicant is advised that upon issuance of this permit, property owner, or property owner's successors, shall be responsible for any and all damages arising out of the condition of any private improvements in the public right-of-way.

Accepted: Ralph McGahey, CDLP (Applicant Permittee) Ralph McGahey (Sign) 02/06/17 Date

Cascade Drilling, L.P. (Contractor) Ralph McGahey (Print Name) 02/06/17 Date

SPECIAL PROVISIONS:

____1. Street shall not be open cut for underground installations. Minimum cuts may be allowed for connections or exploration holes. Such cuts may be specifically approved by the Inspector prior to cutting.
____2. Pavement may be cut for underground installations and must be restored in accordance with the Standard Details Trench Restoration Method "A", unless otherwise approved by the Engineer.
____3. Work to be staked by a licensed Land Surveyor or Civil Engineer and two (2) copies of the cut sheets sent to the Public Works Department before starting work.
__✓__4. Per Section 4216 of the Government Code this permit is not valid for excavations until Underground Service Alert (USA) has been notified and the inquiry identification number has been entered hereon. USA Phone: 1-800-227-2600. USA TICKET NO.____
____5. Prior to any work, the property owner shall execute an Agreement for Private Improvements in the Public Right-of-Way, which shall be recorded.
____6. Public Notification Requirements:____
____7. ____

SEE PUBLIC WORKS FEE SCHEDULE FOR CURRENT FEES

	AMOUNT	RECEIPT NO.
PERMIT APPLICATION FEE	$ 434-	
PLAN CHECK DEPOSIT	$	
SECURITY FOR FAITHFUL PERFORMANCE/LABOR & MATERIALS	$	
CONSTRUCTION CASH DEPOSIT	$	
PLAN CHECK & INSPECTION FEE	$ 20,000 -	
EMERGENCY PERMIT FEE	$	

APPROVED FOR ISSUANCE ____ For City Engineer 2/7/17 Date

[illegible] Months After Date of Issuance

City
Council
Report

Item:
Category: New Business
Meeting Date: August 18, 2015

TITLE: **Authorization to Negotiate Issuance of Encroachment Permit and Permanent Easement to Santa Clara Valley Water District for Construction and Operation of Monitoring Wells in John D. Morgan Park**

RECOMMENDATION

That the City Council authorize the City Manager to negotiate issuance of an Encroachment Permit and a permanent access and operations easement to Santa Clara Valley Water District for construction and operation of Monitoring Wells in John D. Morgan Park.

BACKGROUND

Santa Clara Valley Water District (SCVWD) staff has requested that the City of Campbell authorize the construction of permanent deep groundwater monitoring wells in the Budd Avenue parking lot area at John D. Morgan Park. The monitoring wells are necessary for the District to evaluate the feasibility of constructing injection wells in this vicinity for the purpose of introducing purified recycled water to replenish groundwater losses and to permanently monitor groundwater conditions. The SCVWD's request is attached as Exhibit A.

DISCUSSION

City staff from the Departments of Public Works and Recreation and Community Services met with District staff at the proposed construction site and believe that this important project can be constructed and operated successfully at this location with minimum disruption to the adjacent neighborhood and park recreation programs.

SCVWD has provided information indicating that noise generated during the estimated two months construction of the monitoring wells will not exceed levels allowed by Campbell Municipal Code construction noise limitations. The 7 a.m. – 6 p.m. proposed hours of construction exceed the normal 8 a.m. – 5 p.m. hours allowed but could be approved by the City, if determined necessary. This issue will be closely reviewed as a part of the Encroachment Permit preparation.

FISCAL IMPACT

None at this time

ALTERNATIVES

Do not authorize the City Manager to negotiate issuance of an Encroachment Permit

Prepared by: Bill Helm
Bill Helms, Executive Project Manager

Reviewed by: Michelle Q
Michelle Quinney, City Engineer

Reviewed by: Todd Capurso by MQ
Todd Capurso, Public Works Director

Approved by:
Mark Linder, City Manager

Attachment: Exhibit A – SCVWD Project Proposal

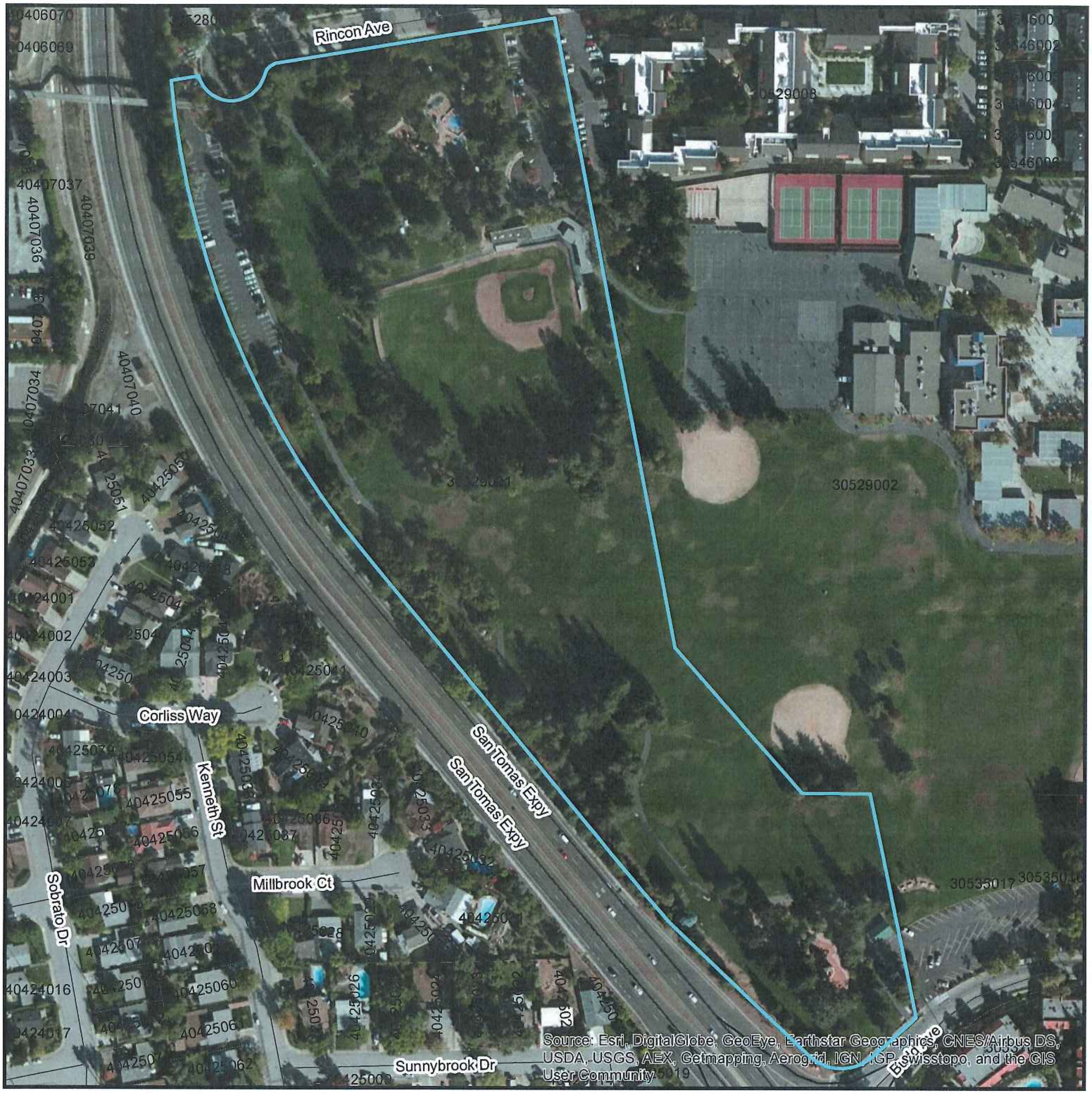
JOHN D MORGAN PARK

APN 305-29-001

NORTH EAST CORNER OF BUDD AVE AND SAN TOMAS

CAMPBELL, CA 95008-2808

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Approximate Scale

0 — 650 — 1,300 Feet

Wells

- ⊕ A01: Water Supply - Active
- ▣ S: Water Supply - Standby
- ■ IS01: Water Supply - Inactive
- ⊕ A02: Extraction (Env) - Active
- 🟩 I02: Extraction (Env) - Inactive
- ⊕ A: Other - Active
- ■ I: Other - Inactive
- ✱ B: Abandoned
- ⊕ D: Destroyed
- ▲ Undet: Status Undetermined
- ☐ Parcels

3/20/2017

Appendix J - Morgan Park Monitoring Wells Development Documentation (Cascade)

CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Boise, ID (208) 345-0878
Fife, WA (253) 883-5200
Peoria, AZ (623) 935-0124
Upland, CA (562) 929-8176

Las Vegas, NV (702) 643-0023
Portland, OR (503) 775-4118
Reno, NV (530) 682-3068
Richmond, CA (510) 478-0858

Sacramento, CA (916) 638-1169
San Diego, CA (619) 596-0644
Seattle, WA (425) 485-8908

CASCADE DRILLING DAILY WORK REPORT

CLIENT S C V W D
PROJECT NO 109-17-1002
DATE 4-17-17
DAY Monday
JOB LOCATION 349 Budd Ave campbell
DIG ALERT # X705200319
CD-LP#

DESCRIPTION OF WORK

Please explain reasons for Down Time and Standby Time and Shop Time

Well # Bore #	Depth Drilled		HOURS Start	HOURS Stop	Total Hrs	Charge Hrs
		AM Shop Time: Pre-Trip	7:00	7:30	.5	
		Travel to Site: Travel From shop (W. Sac) to Job Site	7:30	11:00	3.5	
		Decon, Load Tooling	11:00	5:00	5.5	
		Lunch	12:00	12:30	.5	
		Clean and secure site	5:00	5:30	.5	
		Travel From Job Site to Hotel	5:30	6:00	.5	
		Rename Wells as Follows				
		LGRS1 —— Morgan Park 5				
		LGRS2 —— Morgan Park 4				
		LGRS3 —— Morgan Park 3				
		LGRS4 —— Morgan Park 2				
		Travel to Shop: LGRS5 —— Morgan Park 1				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ______ STOP ______ TOTAL ______

EQUIPMENT

DRILL RIG #		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	22-54481	SNOW FENCE RENTAL	
SUPPORT TRUCK #	23-12146	CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER	41-01206		

LABOR

CREW WITH PER DIEM 3
CHARGEABLE EXTRA LABOR HRS

NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS
R. Hatfield	Randall Hatfield			10.5
J. Endicott	Josh Endicott			10.5
C. Ramer	Cordale Ramer			10.5

CASING

TYPE__SLOT__	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		DRUMS	
BENTONITE GROUT		HOLE COVER PLATES	
BENTONITE CHIPS		PLASTIC SHEETING	
BENTONITE POWDER		TRAFFIC CONTROL	
BENTONITE PELLETS		CORE BOXES	
BENTONITE GRANULAR		PLYWOOD	
SAMPLER TUBES		WATER SAMPLES	
SHELBY TUBES		HYDROPUNCH SAMPLES	
PROBE POINTS "		AUGER PLUGS	
GW PROBE POINTS		DRILL OUT BITS	
MACRO LINERS			
SAMPLER SHOE			

REMARKS

Client Signature Scott Alao

Operator Signature Randall Hatfield

CASCADE DRILLING DAILY WORK REPORT

CASCADE DRILLING, L.P.
LEADERS IN SAFETY

Boise, ID (208) 345-0878
Fife, WA (253) 883-5200
Peoria, AZ (623) 935-0124
Upland, CA (562) 929-8176

Las Vegas, NV (702) 643-0023
Portland, OR (503) 775-4118
Reno, NV (530) 682-3068
Richmond, CA (510) 478-0858

Sacramento, CA (916) 638-1169
San Diego, CA (619) 596-0644
Seattle, WA (425) 485-8908

CLIENT SCVWD
PROJECT NO
DATE 4-18-17
DAY Tuesday
JOB LOCATION 349 Budd Ave Campbell CA
DIG ALERT#
CD-LP#

DESCRIPTION OF WORK

Please explain reasons for Down Time and Standby Time and Shop Time

Well # Bore #	Depth Drilled	Description	HOURS Start	HOURS Stop	Total Hrs	Charge Hrs
		AM Shop Time				
		Travel to Site: Travel From Hotel to Job site, Get Fuel	6:45	7:30	.75	
		Safety meeting, Warm equipment, inspections	7:30	8:30	1	
		Load, Prep to Mob	8:30	12:00	4.5	
		Lunch	12:00	12:30	.5	
		Mob From Job site to shop (W. Sac)	12:30	3:00	2.5	
		unload	3:00	3:30	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ______ STOP ______ TOTAL ______

EQUIPMENT

DRILL RIG #		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #	23-12146	SNOW FENCE RENTAL	
SUPPORT TRUCK #	22-54481	CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER	41-01206		

LABOR

CREW WITH PER DIEM 3
CHARGEABLE EXTRA LABOR HRS

NAME	SIGNATURE	SHOP	DRILL	TOTAL HRS
R. Hatfield	Randall Hatfield			8.25
J. Endicott	Joseph Endicott			8.25
C. Roman	[illegible] Roman			8.25

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
6' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		DRUMS	
BENTONITE GROUT		HOLE COVER PLATES	
BENTONITE CHIPS		PLASTIC SHEETING	
BENTONITE POWDER		TRAFFIC CONTROL	
BENTONITE PELLETS		CORE BOXES	
BENTONITE GRANULAR		PLYWOOD	
SAMPLER TUBES		WATER SAMPLES	
SHELBY TUBES		HYDROPUNCH SAMPLES	
PROBE POINTS		AUGER PLUGS	
GW PROBE POINTS		DRILL OUT BITS	
MACRO LINERS			
SAMPLER SHOE			

REMARKS

Client Signature______________________ Operator Signature Randall Hatfield

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 10917 1002
DAY: MON
DATE: 4-17-17
JOB LOCATION:
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time: LOAD TOOLING	5AM	6AM	1.0	
		Travel to Site: TRAVEL	6AM	930	3.5	
		ON SITE... MOVE EQUIPMENT... SITE CLEAN UP	9:30	10:00	1.0	
		SET UP ON WELL # LGRS 03, 04, 05	10:30			
		03 T.D 237.17 W.L. 102.00				
		04 T.D 300.00 W.L. 105.05				
		05 T.D 377.50 W.L 138.60		11:30	1.0	
		BAIL 95 GAL. OUT OF 05 WELL,	11:30	LUNCH	-.5	
		CLEAN-UP SITE		5PM	5.0	
		TRAVEL	5PM	530	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START | STOP

TOTAL 12.0

EQUIPMENT

DRILL RIG #	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	2015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS "		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				12.0

CREW WITH PER DIEM (1)
CHARGEABLE EXTRA LABOR HRS

REMARKS
ALL MEASUREMENT'S ARE TOP OF CASING

Client Signature Scott Alao
Operator Signature Patrick E Mullen

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 109171002
DAY: TUE
DATE: 4-18-17
JOB LOCATION:
DIG ALERT #:
JOB #:

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled		Start	Stop	Total Hrs	Charge Hours
		AM Shop Time	~~630~~	~~7Am~~		
		Travel to Site TRAVEL				
		H&S ... OPEN UP SITE ... MOVE EQUIPMENT	630	7AM	.5	
		SET UP ON WELL # LGRS 03, 04, 05	7AM	8AM	1.0	
	03	T.D. 237.17 W.L. 101.46	8AM			
	04	T.D. 377.50 W.L. 114.50				
	05	T.D. 394.80 W.L. 116.30	-LUNCH-		-.5	
		BAIL 10 GAL OUT OF 05 ZONE (DEEP)				
		BAIL 40 GAL OUT OF 04 ZONE (MID)		3130	7.0	
		ASSEMBLE AIR LIFTING TOOL'S	3130	5PM	1.5	
		TRAVEL	5PM	5130	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START STOP 129

TOTAL 10.5

EQUIPMENT

DRILL RIG #	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	2015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				10.5

CREW WITH PER DIEM ① CHARGEABLE EXTRA LABOR HRS

CASING

TYPE___SLOT___	2	4
20' SCREEN		
10' SCREEN		
5' SCREEN		
20' BLANK		
10' BLANK		
5' BLANK		
5' PP SCREEN		
10' PP SCREEN		
SLIP CAP		
THREADED CAPS		
LOCKING CAPS		
DRIVE SHOE		
CENTRALIZERS		
LOCKS		

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS	"	SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS

Client Signature SCOTT ALDO

Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCV WD
PROJECT #: 10917 1002
DAY: WED
DATE: 4-19-17
JOB LOCATION: CAMPBELL, CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7: Am	.5	
		OPEN up site... move Equip... H&S	7Am	8Am	1.0	
		SET UP ON WELL# LGRS 03, 04, 05	8Am			
03		T.D. 235.17 W.L. 100.20				
04		T.D. 300.00 W.L. 102.55	-LUNCH-		-.5	
05		T.D 394.80 W.L. 114.60				
		BAIL 120 GAL		3PM	6.5	
		MOVE TO WELL # LGRS 01,02	3PM			
01		T.D. 110.83 W.L. 88.20				
02		T.D. 150.50 W.L 90.00		4:30	1.5	
		SITE CLEAN UP... LOCK UP & SECURE Site	4:30	5PM	.5	
		TRAVEL	5PM	530	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft		**TOTAL CHARGEABLE RIG HOURS**				

RIG ENGINE HOURS: START STOP 147
TOTAL 10.5

EQUIPMENT

DRILL RIG#	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	4-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				10.5

CREW WITH PER DIEM 1 CHARGEABLE EXTRA LABOR HRS

CASING

TYPE ___ SLOT	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS

Client Signature Scott Alao

Operator Signature Patrick Mullen

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: ~~SC~~ SCVWD
PROJECT #: 10917/002
DAY: THUR
DATE: 4-20-17
JOB LOCATION: CAMPBELL, CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site: TRAVEL	6:30	7AM	.5	
		OPEN UP SITE... STAGE EQUIPMENT, H&S	7AM	8AM	1.0	
		TAG WATER LEVEL'S IN ALL 5 ZONES	8AM			
		LGRS				
01		T.D. 110.83 W.L. 88.15				
02		T.D 150.50 W.L. 90.60				
03		T.D. 235.17 W.L. 96.45				
04		T.D 300.00 W.L. 100.80				
05		T.D. 394.80 W.L. 113.61		9:30	1.5	
		SURGE WELL # 01 = SURGE 5' STROKE FOR 5MIN	9:30			
		EACH... x3... BAIL 60 GAL				
		SURGE WELL # 02 = SURGE 5' STROKE FOR 5MIN	-LUNCH-		.5	
		EACH... x2... BAIL 20 GAL				
		SET PUMP IN WELL # 01... PUMP APPROX 273 GAL		4:30	6.5	
		~~Travel to Shop~~ SITE CLEAN UP	4:30	5PM	.5	
		~~AM Shop Time~~ TRAVEL	5PM	5:30	.5	
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ______ STOP 165

TOTAL 10.5

EQUIPMENT

DRILL RIG #	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE ___ SLOT ___	2	4
20' SCREEN		
10' SCREEN		
5' SCREEN		
20' BLANK		
10' BLANK		
5' BLANK		
5' PP SCREEN		
10' PP SCREEN		
SLIP CAP		
THREADED CAPS		
LOCKING CAPS		
DRIVE SHOE		
CENTRALIZERS		
LOCKS		

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS "		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
PATRICK MULLEN			10.5

CREW WITH PER DIEM ① CHARGEABLE EXTRA LABOR HRS

UTILITIES FOUND OR HIT

REMARKS

Client Signature SCOTT ALAO
Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 10917 1002
DAY: FRi
DATE: 4-21-17
JOB LOCATION: CAMPBELL, CA
DIG ALERT #:
JOB #:

DESCRIPTION OF WORK

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7:AM	.5	
		OPEN UP SITE... STAGE TOOLING...	7AM	8AM	1.0	
		TAG WATER LEVEL'S IN ALL WELL'S	8AM			
	01	W.L. 88.35				
	02	W.L. 90.78				
	03	W.L. 95.92				
	04	W.L. 99.10				
	05	W.L. 112.70		930	1.5	
		RUN 357' OF 1" PIPE INTO WELL # 05	9:30			
		RUN 252' OF 1" PIPE INTO WELL # 04				
		HOOK UP AIR LIFTING DEVERTERS...		11:30	2.0	
		— LUNCH —	11:30	12:00	.5	
		Travel to Shop TRAVEL	12:00	2:30	2.5	
		~~PM Shop Time~~ PICK UP TOOLING	2:30	4PM	1.5	
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START
STOP 172
TOTAL 9.0

EQUIPMENT

DRILL RIG#	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS	"	SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				9.0

CREW WITH PER DIEM ①
CHARGEABLE EXTRA LABOR HRS

REMARKS
.5 AM TRAVEL 4.5. HRS ON SITE. P.M. TRAVEL 4.0

Client Signature_______________
Operator Signature PATRICK MULLEN

CLIENT: ~~SV~~ SCVWD
PROJECT #: 10917/1002
DAY: MONDAY
DATE: 4·24-17
JOB LOCATION:
DIG ALERT #:
JOB #:

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled			Start	Stop	Total Hrs	Charg Hours
		AM Shop Time					
		Travel to Site	TRAVEL	5AM	7:30	2.5	
		OPEN UP SITE... H&S...		7:30	8AM	.5	
		TAG... WATER LEVEL'S IN WELL LGRS		8AM			
01		W.L 88.80					
02		W.L 90.75					
03		W.L 95.73					
04		W.L 96.81					
05		W.L 110.89			9:30	1.5	
		SET UP ON WELL # LGRS 02		9:30			
		SURGE x1 ... 5' STROKES FOR 5 MIN EA FROM					
		LOWER SCREEN TO UPPER SCREEN, BAIL 5 GAL			11AM	1.5	
		SET UP ON WELL# LGRS 03, 04, 05...		11AM			
		BEGIN AIR LIFT ON WELL'S 04, 05... (LIFT & SURGE)					
		REMOVE APROX 500 GAL FROM 05, AND APROX 400 FROM			~LUNCH	.5	
		~~Travel to Shop~~	04... SITE CLEAN UP...		5PM	5.5	
		~~PM Shop Time~~	TRAVEL	5PM	5:30	.5	
Total Ft.		**TOTAL CHARGEABLE RIG HOURS**					

RIG ENGINE HOURS: START STOP 193
TOTAL 12.0

EQUIPMENT

DRILL RIG#	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				12.0

CREW WITH PER DIEM ①
CHARGEABLE EXTRA LABOR HRS

UTILITIES FOUND OR HIT

REMARKS

COMPRESSOR # 6494 HRS START 1809 / STOP 1812

Client Signature SCOTT ALAO
Operator Signature PATRICK MULLEN

CLIENT: SCVWD | PROJECT #: 109171002 | DAY: TUES | DATE: 4-25-17

JOB LOCATION: CAMPBELL, CA | DIG ALERT #: | JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charg Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7AM	.5	
		OPEN UP SITE... PRE TRIP EQUIPMENT... H&S	7AM	8AM	10	
		SET UP ON WELL #LGRS 03, 04, 05	8AM			
		TAG WATER LEVEL'S				
	01	W.L. 88.90				
	02	W.L. 91.20				
	03	W.L. 95.76				
	04	N/A				
	05	N/A		830	.5	
		BEGIN AIRLIFT ON WELL'S 04, 05 ... Morgan Park 2+1	830			
		NTU'S WERE UNDER 5NTU'S... REMOVE DROP PIPE				
		IN 04...05... SURGE SCREEN 5' STROKES FOR 5 MIN				
		EACH.. BAIL 5 GAL OUT OF EACH.. RESET DROP PIPE	-LUNCH-		-.5	
		INTO SUMP ON BOTH WELL'S.. CONTINUE AIRLIFT				
		Trav~~el to S~~hop ALSO PUMPING ON WELL'S 01, 02.. NTU = 5 AND				
		PM ~~Shop Ti~~me UNDER... (LEFT SIGHT Morgan Park 5, 4		5PM	8.0	
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START | STOP 202 | TOTAL 10 —

EQUIPMENT

DRILL RIG#	05-11596	[✓ COMPRESSOR] JACKHAMMER	6494
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
PATRICK MULLEN			10.5

CREW WITH PER DIEM ① | CHARGEABLE EXTRA LABOR HRS

CASING

TYPE___SLOT___	2	4
20' SCREEN		
10' SCREEN		
5' SCREEN		
20' BLANK		
10' BLANK		
5' BLANK		
5' PP SCREEN		
10' PP SCREEN		
SLIP CAP		
THREADED CAPS		
LOCKING CAPS		
DRIVE SHOE		
CENTRALIZERS		
LOCKS		

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS	"	SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS COMPRESSOR # 6494 HRS 1817 * TRAVEL 5PM- 530 .5

TOTAL = 10.5

Client Signature SCOTT ALAO

Operator Signature PATRICK MULLEN

CLIENT: SCVWD
PROJECT #: 109171002
DAY: WED
DATE: 4-26-17
JOB LOCATION: CAMPBELL
DIG ALERT #:
JOB #:

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled	Description	Hours Start	Hours Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7AM	.5	
		OPEN UP SITE... PRE CHECK EQUIPMENT...	7AM	8AM	1.0	
		TAG WATER LEVEL'S	8AM			
	01	89.00				
	02	91.22				
	03	95.68		8:30	.5	
		BEGIN AIR LIFT IN WELL'S LGRS 04, 05	8:30	10AM	1.5	
		STOP AIRLIFT... REMOVE DROP PIPE FROM 05, RESET DROP	10AM			
		PIPE INTO WELL 03 ... STOP AIRLIFT... PULL DROP PIPE	—LUNCH—		.5	
		OUT OF WELL'S 03, 04...		1PM	2.5	
		SET PUMP INTO WELL # 05..	1PM			
		SURGE X 3 5' STOKES FOR 5 MIN EA... BAIL 10 GAL IN				
		WELL # 03..				
		PULL PUMP FROM 05... AND RESET INTO 04		5PM	4.0	
		~~Travel to~~ Shop TRAVEL	5PM	5:30	.5	
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START   STOP   TOTAL 10.5

EQUIPMENT

DRILL RIG#	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE__SLOT__	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				10.5

CREW WITH PER DIEM ①
CHARGEABLE EXTRA LABOR HRS

UTILITIES FOUND OR HIT

REMARKS

Client Signature SCOTT ALAO
Operator Signature PATRICK MULLEN

CLIENT: SCVWD | PROJECT #: 10917 1002 | DAY: THURS | DATE: 4-27-17

JOB LOCATION: CAMPBELL | DIG ALERT #: | JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7Am	.5	
		OPEN UP SITE. H&S... SET UP ON WELL'S	7Am	8Am	1.0	
		LGRS 03, 04, 05..				
		TAG WATER LEVEL'S IN WELL'S LGRS	8Am	..		
		01=89.05... 02=91.30...03=96.10...04=95.96...	..			
		05=110.00		830	.5	
		PUMP WELL'S LGRS 04 AND 05 to	830 -	LUNCH	-.5	
		UNDER 5 NTU'S Morgan Park 2-1		12:30	3.5	
		THEN BEGIN PUMPING IN WELL LGRS 03	12:30			
		REMOVE 210 GAL...		5PM	4.5	
		TRAVEL	5PM	530	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START | STOP | TOTAL 10.5

EQUIPMENT

DRILL RIG#	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				10.5

CREW WITH PER DIEM ① CHARGEABLE EXTRA LABOR HRS

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS

Client Signature Scott Alao

Operator Signature PATRICK MULLEN

CLIENT: SCVWD | PROJECT #: 10917 1002 | DAY: FRI | DATE: 4·28·17

JOB LOCATION: CAMPBELL | DIG ALERT #: | JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7AM	.5	
		OPEN UP SITE ... H&S... SET UPON WELL #	7AM	8AM	1.0	
		LGRS 03, 04, 05 ..				
		TAG WATER LEVEL'S IN WELL'S LGRS	8AM			
	01	W.L. 89.05				
	02	W.L. 91.20				
	03	W.L. 95.60				
	04	W.L. 95.90				
	05	W.L. 110.10		8:30	.5	
		START PUMP IN WELL #LGRS 03	8:30			
		PUMP APROX 120 GAL		11:30	3.0	
		LUNCH	11:30	12:00	.5	
		LOCK UP SITE...	12:00	12:30	.5	
		TRAVEL	12:30	4PM	3.5	
		Travel to Shop				
		PM Shop Time				
Total Ft		**TOTAL CHARGEABLE RIG HOURS**				

RIG ENGINE HOURS: START | STOP | TOTAL 9.0

EQUIPMENT

DRILL RIG #	05-11596	COMPRESSOR/JACKHAMMER	30-58494
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE ___ SLOT ___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				9.0

CREW WITH PER DIEM ① | CHARGEABLE EXTRA LABOR HRS

UTILITIES FOUND OR HIT

REMARKS

AM-TRAVEL .5... ONSITE = 5HRS... PM TRAVEL = 3.5

Client Signature ____________________ Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 10917 1002
DAY: MON
DATE: 5-1-17
JOB LOCATION: CAMPBELL, CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	5Am	730	2.5	
		OPEN UP SITE... H&S... SET UP ON WELL	730	830	1.0	
		#LGRS 03, 04, 05				
		TPG WATER LEVEL'S	830	9Am	.5	
	01	W.L. 88.42				
	02	W.L. 90.65				
	03	W.L. 95.50				
	04	W.L. 95.86				
	05	W.L. 111.68				
		START PUMP ON LGRS 03	9Am -	LUNCH	-.5	
		PUMP... PUMP APROX 150 GAL.		5Pm	7.5	
		TRAVEL	5PM	5130	,5	
		Travel to Shop				
		PM Shop Time				
Total Ft		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START STOP TOTAL 12.0

EQUIPMENT

DRILL RIG#		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS "		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				12.0

CREW WITH PER DIEM (1) CHARGEABLE EXTRA LABOR HRS

REMARKS

Client Signature________________ Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD	PROJECT #: 10917 1602	DAY: TUES	DATE: 5-2-17
JOB LOCATION: CAMPBELL	DIG ALERT #:		JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:30	7AM	.5	
		OPEN UP SITE -- MOVE EQUIP...	7AM	8AM	1.0	
		TAG WATER LEVEL'S				
	01	87.90				
	02	90.20				
	03	95.12				
	04	95.51				
	05	100.58				
		TRAVEL	8AM	11:30	3.5	
		Travel to Shop				
		PM Shop Time				
Total Ft		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START ____ STOP ____ TOTAL 5.0

EQUIPMENT

DRILL RIG #		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PAARK MULLER				5.0

CREW WITH PER DIEM ____ CHARGEABLE EXTRA LABOR HRS ____

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS	"	SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS

Client Signature____________________ Operator Signature PATRICK MULLER

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 109171002
DAY: THURS
DATE: 5-11-17
JOB LOCATION: CAMPBELL CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	Stop	Total Hrs	Charge Hours
		AM Shop Time: LOAD TOOLING	5 AM	5:30	.5	
		Travel to Site: TRAVEL	5^{30}	8:30	3.0	
		SET UP ON WELL # LGRS (08,04,05 Morgan Park 3,2,&1)	8^{30}	9^{30}	1.0	
		REBUILD READY FLOW PUMP...	9^{30}	11^{30}	2.0	
		~~SET~~ SET PUMP...	11:30 -	LUNCH	.5	
		PUMP UNTIL 5NTU OR UNDER..		5PM	5.0	
		TRAVEL	5PM	5^{30}	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START STOP
TOTAL 12.0

EQUIPMENT

DRILL RIG#	05-1596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #	67015	CONTINUOUS SAMPLER	
TRAILER #	34 ~~6075~~	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
PATRICK MULLEN			12.0
JEFF N			10.0

CREW WITH PER DIEM 2
CHARGEABLE EXTRA LABOR HRS

CASING

TYPE__SLOT__	2	4
20' SCREEN		
10' SCREEN		
5' SCREEN		
20' BLANK		
10' BLANK		
5' BLANK		
5' PP SCREEN		
10' PP SCREEN		
SLIP CAP		
THREADED CAPS		
LOCKING CAPS		
DRIVE SHOE		
CENTRALIZERS		
LOCKS		

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS
JEFF N. = 7AM - 5^{30} - 10 HRS

SCOTT ALAN

Client Signature__________ Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 Duluth St, West Sacramento, CA 95691 **P.** 916.638.1169 Lic #C57-938110
120 South 23rd St, Richmond, CA 94804 **P.** 510.478.0858 Lic #C57-938110
PO Box 1184, Woodinville, WA 98072 **P.** 425.485.8908 Lic #CASCADL915O8

CLIENT: SCVWD
PROJECT #: 10917 1002
DAY: FRI
DATE: 5-~~13~~-17 -12-
JOB LOCATION: CAMPBELL CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	6:AM	6:30	.5	
		OPEN UP SITE... STAGE EQUIPMENT	6:30	7AM	.5	
		SET UP ON WELL # LGRS 03, 04, 05	7AM	7:30	.5	
		START PUMP IN WELL LGRS 03	7:30			
		END PUMP IN WELL # LGRS 03... (ALL WELLS				
		COMPLETE) WELL # LGRS		9:30	2.0	
01		T.D. 110.83 W.L 74.85	9:30			
02		T.D. 150.50 W.L. 81.01				
03		T.D. 235.18 W.L 92.55				
04		T.D 299.98 W.L. 93.28				
05		T.D 394.80 W.L. 112.81		10AM	.5	
		SITE CLEAN UP... LOAD TOOLING	10AM	10:30	.5	
		LUNCH -	10:30	11AM	.5	
		Travel to Shop TRAVEL	11:AM	1:30	2.5	
		PM Shop Time UNLOAD TOOLING...	1:30	2:30	1.0	
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START STOP TOTAL 8.0

EQUIPMENT

DRILL RIG #	05-11596	COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #	34-67015	CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

CASING

TYPE___ SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

LABOR

NAME	SIGNATURE	SHOP	TOTAL HRS
PATRICK MULLEN			8.0

CREW WITH PER DIEM 0 CHARGEABLE EXTRA LABOR HRS

REMARKS

* ALL WELL'S WERE UNDER 5 NTU'S

Client Signature Scott Alao

Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD	PROJECT #: 10917 1002	DAY: FRi	DATE: 6-2-17
JOB LOCATION:	DIG ALERT #:		JOB #:

DESCRIPTION OF WORK

Well # Bore #	Depth Drilled	Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	5Am	7 30	2.5	
		SITE PREP	7 30	9 30	2.0	
		POUR CONCRETE FOR WELL BOX'S	9 30	11Am	1.5	
		TRAVEL	11Am	2 30	3.5	
		— LUNCH —		—	.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START STOP TOTAL 9.0

EQUIPMENT

DRILL RIG#		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				9.0

CREW WITH PER DIEM
CHARGEABLE EXTRA LABOR HRS

CASING

TYPE ___ SLOT ___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS	"	SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS
AM TRAVEL 2.5 - ONSITE 3.5 PM TRAVEL 3.0

Client Signature Scott Alan
Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 109171002
DAY: WED
DATE: 5-31-17
JOB LOCATION: CAMPBELL, CA
DIG ALERT #:
JOB #:

Well # Bore #	Depth Drilled	DESCRIPTION OF WORK Please explain reasons for Down Time, Standby Time, and Shop Time	HOURS Start	HOURS Stop	Total Hrs	Charge Hours
		AM Shop Time				
		Travel to Site TRAVEL	4:30	5Am	.5	
		UNLOAD REBAR ...	5Am			
		ASSEMBLE REBAR FOR CONCRETE RE-				
		INFORCEMENT... FOR WELL COMPLETIONS		10Am	5.0	
		- LUNCH -	10Am	10:30	-.5	
		TRAVEL	10:30	1Pm	2.5	
		Travel to Shop				
		PM Shop Time				
Total Ft.		TOTAL CHARGEABLE RIG HOURS				

RIG ENGINE HOURS: START
STOP
TOTAL 8.0

EQUIPMENT

DRILL RIG #		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				

CREW WITH PER DIEM 1
CHARGEABLE EXTRA LABOR HRS

CASING

TYPE___SLOT___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS
(1/2 HR AM TRAVEL)(ON SITE 5 HRS) PM TRAVEL 2.5

Client Signature Scott Alap
Operator Signature PATRICK MULLEN

CASCADE
DRILLING | TECHNICAL SERVICES

CASCADE DAILY WORK REPORT

3000 DULUTH ST WEST SACAMENTO, CA 95691
P. 916.638.1169 # CASCADL91508

CLIENT: SCVWD
PROJECT #: 10917 1002
DAY: TUES
DATE: 5-30-17
JOB LOCATION: CAMPBELL CA
DIG ALERT #:
JOB #:

DESCRIPTION OF WORK

Please explain reasons for Down Time, Standby Time, and Shop Time

Well # Bore #	Depth Drilled			Start	Stop	Total Hrs	Charge Hours
		AM Shop Time	LOAD TOOLING	5:Am	5:30	.5	
		Travel to Site	TRAVEL	5:30	7:30	2-0	
		INSTALL GRAVEL ..		7:30			
		COMPACT GRAVEL, LAY OUT FELT		-LUNCH		-.5	
		FORM RISERS...			2:30		6.5
		SITE CLEAN UP..		2:30	3Pm	.5	
		TRAVEL		3Pm	3 30	.5	
		Travel to Shop					
		PM Shop Time					
Total Ft		TOTAL CHARGEABLE RIG HOURS					

RIG ENGINE HOURS: START STOP

TOTAL 10-0

EQUIPMENT

DRILL RIG#		COMPRESSOR/JACKHAMMER	
SUPPORT TRUCK #		SNOW FENCE RENTAL	
SUPPORT TRUCK #		CONTINUOUS SAMPLER	
TRAILER #		CONTINUOUS SAMPLER FOOTAGE	
BOBCAT		# OF CORE CUTS	
AUTO HAMMER		# OF BULLDOG CUTS	
GROUT MIXER		# OF SERVICE RUNS	
GROUT PUMP		# OF SAW CUTS	
PERISTALTIC PUMP		PORTABLE RESTROOM	
FORKLIFT/HOPPER		EXHAUST DUCTING	

LABOR

NAME	SIGNATURE	SHOP		TOTAL HRS
PATRICK MULLEN				10-0

CREW WITH PER DIEM 1 CHARGEABLE EXTRA LABOR HRS

CASING

TYPE ___ SLOT ___	2	4	
20' SCREEN			
10' SCREEN			
5' SCREEN			
20' BLANK			
10' BLANK			
5' BLANK			
5' PP SCREEN			
10' PP SCREEN			
SLIP CAP			
THREADED CAPS			
LOCKING CAPS			
DRIVE SHOE			
CENTRALIZERS			
LOCKS			

UTILITIES FOUND OR HIT

MATERIALS

ITEM	QTY	ITEM	QTY
SAND		WELL COVER 8"	
READYMIX		WELL COVER 12"	
QUICKSET		MONUMENT CASING	
PORTLAND		BOLLARDS	
ASPHALT		SOIL DRUMS	
BENTONITE GROUT		DEVELOPMENT DRUMS	
BENTONITE CHIPS		DECON DRUMS	
BENTONITE POWDER		HOLE COVER PLATES	
BENTONITE PELLETS		PLASTIC SHEETING	
BENTONITE GRANULAR		TRAFFIC CONTROL	
SAMPLER TUBES		CORE BOXES	
SHELBY TUBES		PLYWOOD	
PROBE POINTS "		SOIL SAMPLES	
GW PROBE POINTS		WATER SAMPLES	
EXP POINTS		MACRO LINERS	
SAMPLER SHOE		AUGER PLUGS	
		DRILL OUT BITS	

REMARKS

Client Signature Scott Alao

Operator Signature PATRICK MULLEN

Appendix K - Morgan Park Monitoring Wells Survey Information

MORGAN PARK

Project file data		Coordinate System	
Name:	S:\REQUESTS\WELLS\2017_154\FIELD\FIEL	Name:	United States/State Plane 1983
Size:	58 KB	Datum:	NAD 1983 (Conus)
Modified:	6/26/2017 3:24:13 PM (UTC:-7)	Zone:	California Zone 3 0403
Time zone:	Pacific Standard Time	Geoid:	GEOID12A (Conus)
Reference number:	2017-154	Vertical datum: NAVD88	(NGVD29 provided with -2.75'
Description:			
Comment 1:			
Comment 2:			
Comment 3:			

Additional Coordinate System Details

Local Site Settings			
Project latitude:	?	Ground scale factor:	1
Project longitude:	?	False northing offset:	0.000
Project height:	300.000	False easting offset:	0.000

Point List

Morgan Park	Point ID	Northing (US survey foot)	Easting (US survey foot)	Elevation(US survey foot)		Survey Point	
				NAVD88	NGVD29		
3	LGRS 03	1928065.86	6138042.33	204.97	202.22	4	07S01W34G00~~4~~ 5
2	LGRS 04	1928065.79	6138041.92	204.98	202.23	5	07S01W34G00~~5~~ 3
1	LGRS 05	1928066.04	6138042.14	204.98	202.23	6	07S01W34G00~~6~~ 2
	Ground in vault	1928065.92	6138041.66	203.72	200.97	7	
	AC next to vault	1928063.9	6138040.81	205.41	# 202.66	8	
5	LGRS 01	1928063.83	6138029.76	204.99	202.24	9	07S01W34G00~~2~~ 6
4	LGRS 02	1928063.44	6138029.76	204.99	202.24	10	07S01W34G00~~3~~ 4
	Ground in vault	1928063.49	6138030.03	203.47	200.72	11	
	AC next to vault	1928061.37	6138028.37	205.46	# 202.71	12	

Ardy Ghoreishi

From: Roger Pierno
Sent: Thursday, June 29, 2017 10:14 AM
To: Ardy Ghoreishi
Subject: Morgan Park Wells Numbers etc

Well Number	District Well Name	Alternate Well Name	Boring Depth	Well Depth	Well Screen Interval	Cut
07S01W34G002	Morgan Park ~~1~~ 5	LGRS-01	400	110	90-105	0.47
07S01W34G003	Morgan Park ~~2~~ 4	LGRS-02	400	150	132-147	0.47
07S01W34G005	Morgan Park 3	LGRS-04	405	235	210-230	0.43
07S01W34G004	Morgan Park ~~4~~ 2	LGRS-03	405	300	275-295	0.44
07S01W34G006	Morgan Park ~~5~~ 1	LGRS-05	405	395	370-390	0.43

Roger Pierno, ext. 2738
Groundwater Monitoring and Analysis Unit

Appendix L - Morgan Park Monitoring Wells DWR Well Completion Reports

07501W34G002 (MP5) 07501W34G003 (MP4)

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0342994

Page 1 of 1

Owner's Well Number EO342812 Morgan Park 5+4

Date Work Began 03/08/2017 Date Work Ended 3/23/2017

Local Permit Agency Santa Clara Valley Water District

Permit Number C2017032001 Permit Date 3/20/17

DWR Use Only – Do Not Fill In

State Well Number/Site Number

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify

Drilling Method Sonic Drilling Fluid

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	10	clay, brown
10	50	gravels
50	85	clay with small gravels
85	150	sandy gravels

Total Depth of Boring 400 Feet

Total Depth of Completed Well 150 and 110 Feet

Well Owner

Name Santa Clara Valley Water District

Mailing Address 5750 Almaden Expy

City San Jose State CA Zip 95118

Well Location

Address 355 Budd Ave.

City Campbell County Santa Clara

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

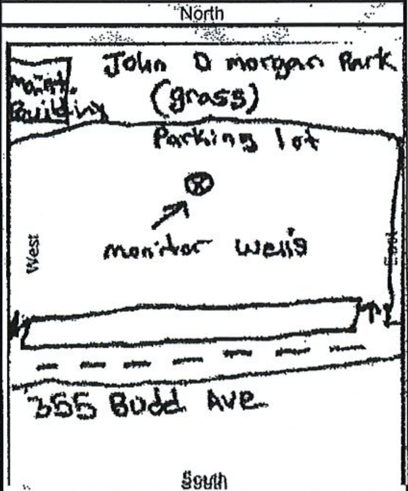
Datum Dec. Lat. Dec. Long.

APN Book Page Parcel

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

- ● New Well
- ○ Modification/Repair
  - ○ Deepen
  - ○ Other
- ○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- ○ Water Supply
  - ☐ Domestic ☐ Public
  - ☐ Irrigation ☐ Industrial
- ○ Cathodic Protection
- ○ Dewatering
- ○ Heat Exchange
- ○ Injection
- ● Monitoring
- ○ Remediation
- ○ Sparging
- ○ Test Well
- ○ Vapor Extraction
- ○ Other

Water Level and Yield of Completed Well

Depth to first water 75 (Feet below surface)

Depth to Static Water Level 90 (Feet) Date Measured 04/27/2017

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	132	12	PVC	Blank	Sch 80	2 3/8		
132	147	12	PVC	Screen	Sch 80	2 3/8	Milled Slots	0.020
147	150	12	PVC	Blank	Sch 80	2 3/8		
0	90	12	PVC	Blank	Sch 80	2 3/8		
90	105	12	PVC	Screen	Sch 80	2 3/8	Milled Slots	0.020
105	110	12	PVC	Blank	Sch 80	2 3/8		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	82	Cement	Portland Type 2
82	87	Bentonite	pellets
87	108	sand	monterey #3
108	129	Bentonite	pellets
129	150	sand	monterey #3

Attachments

- ☑ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Cascade Drilling, L.P.
(Person, Firm or Corporation)

3000 Duluth Street (Address) West Sacramento (City) CA (State) 95691 (Zip)

Signed (C-57 Licensed Water Well Contractor) 5/23/2017 (Date Signed) 938110 (C-57 License Number)

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

07S01W34G005 (MP3), 07S01W34G004 (MP2), 07S01W34G006 (MP1)

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

Morgan Park
3,2+1

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0343007

Page 1 of 2

Owner's Well Number EO342813

Date Work Began 03/08/2017 Date Work Ended 3/23/2017

Local Permit Agency Santa Clara Valley Water District

Permit Number C2017032002 Permit Date 3/20/17

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify

Drilling Method Mud Rotary Drilling Fluid

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc.
0	10	clay, brown
10	50	gravels
50	85	clay with small gravels
85	150	sandy gravels

Total Depth of Boring 405 Feet

Total Depth of Completed Well 235 / 300 / 395 Feet

Well Owner

Name Santa Clara Valley Water District

Mailing Address 5750 Almaden Expy

City San Jose State CA Zip 95118

Well Location

Address 355 Budd Ave.

City Campbell County Santa Clara

Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W

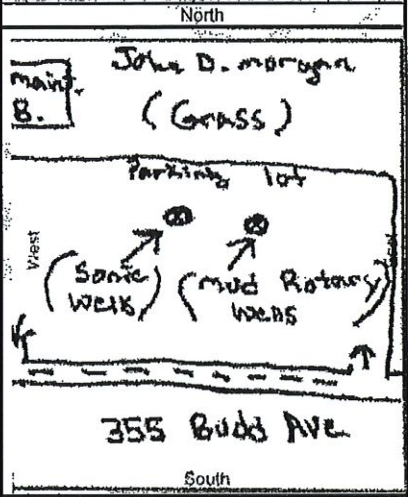
Datum Dec. Lat. Dec. Long.

APN Book Page Parcel

Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

● New Well

○ Modification/Repair

- ○ Deepen
- ○ Other

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply

- ☐ Domestic ☐ Public
- ☐ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

● Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other

Water Level and Yield of Completed Well

Depth to first water 75 (Feet below surface)

Depth to Static Water Level 90 (Feet) Date Measured 04/27/2017

Estimated Yield * (GPM) Test Type

Test Length (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	370	12.25	PVC	Blank	Sch 80	2 3/8		
370	390	12.25	PVC	Screen	Sch 80	2 3/8	Milled Slots	0.020
390	395	12.25	PVC	Blank	Sch 80	2 3/8		
0	275	12.25	PVC	Blank	Sch 80	2 3/8		
275	295	12.25	PVC	Screen	Sch 80	2 3/8	Milled Slots	0.020
295	300	12.25	PVC	Blank	Sch 80	2 3/8		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
3	50	Cement	Portland Type 2
50	207	Bentonite	pellets
207	233	sand	monterey #3
233	272	Bentonite	pellets
272	298	sand	monterey #3
298	367	Bentonite	pellets

Attachments

☑ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Cascade Drilling, L.P.
Person, Firm or Corporation

3000 Duluth Street West Sacramento CA 95691
Address City State Zip

Signed C-57 Licensed Water Well Contractor 5/23/2017 938110
Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0343010

Page 2 of 2
Owner's Well Number EO342813
Date Work Began 03/08/2017 Date Work Ended 3/23/2017
Local Permit Agency Santa Clara Valley Water District
Permit Number C2017032002 Permit Date 3/20/17

DWR Use Only – Do Not Fill In
State Well Number/Site Number
Latitude N Longitude W
APN/TRS/Other

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify
Drilling Method Mud Rotary Drilling Fluid

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)

Total Depth of Boring 405 Feet
Total Depth of Completed Well 235 / 300 / 395 Feet

Well Owner

Name Santa Clara Valley Water District
Mailing Address 5750 Almaden Expy
City San Jose State CA Zip 95118

Well Location

Address 355 Budd Ave.
City Campbell County Santa Clara
Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W
Datum Dec. Lat. Dec. Long.
APN Book Page Parcel
Township Range Section

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North
West
East
South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

● New Well
○ Modification/Repair
  ○ Deepen
  ○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
  ☐ Domestic ☐ Public
  ☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
● Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 75 (Feet below surface)
Depth to Static Water Level 90 (Feet) Date Measured 04/27/2017
Estimated Yield * (GPM) Test Type
Test Length (Hours) Total Drawdown (Feet)
*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	210	12.25	PVC	Blank	Sch 80	2 3/8		
210	230	12.25	PVC	Screem	Sch 80	2 3/8	Milled Slots	0.020
230	235	12.25	PVC	Blank	Sch 80	2 3/8		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
367	405	sand	monterey #3

Attachments

☑ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other
Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief
Name Cascade Drilling, L.P.
Person, Firm or Corporation
300 Duluth Street West Sacramento CA 95691
Address City State Zip
Signed C-57 Licensed Water Well Contractor
5/23/2017 938110
Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Appendix M - Morgan Park Monitoring Wells Completion Reports

Santa Clara Valley
Water District

WELL CONSTRUCTION COMPLETION NOTICE

FC 158A (05-16-14)

Inspector: Thiemann	Date of Inspection: 4/13/17	Permit: C20170320 001
Well Owner: SCVWD	Owner Well No.: LGRS-03	Well Registration No.: 07S01W34G004 07S01W34G005 07S01W34G006
Address of Well Site: Budd & San Tomas Exp		City or County: Campbell
Drilling Company: Cascade	Consultant: Todd	

Cond. Bore:	Conductor Depth:	Conductor Diameter & Material:	TD: 405	Boring Diameter: 12	BOC: 395
Casing Diameter & Material: 2" PVC	Slot Size: 020	Screen Interval(s): 390 - 370			
Filter Pack Material: #3	Filter Pack Interval(s): 405 - 367	Bent: 207 - 50			Seal Depth: 207

Sealing Material: ☒ Neat Cement ☐ 10 Sack Sand Slurry ☐ Bentonite Slurry ☐ Other (See Comments)

Drilling Method: ☐ HSA ☒ Mud Rotary ☐ Other (See Comments) ☐ Direct Push ☐ Air Rotary

Well Type: ☒ GW Monitoring ☐ GW Extraction ☐ Vadose Monitoring ☐ Vadose Extraction ☐ Cathodic ☐ Domestic ☐ Agricultural ☐ Municipal/Industrial ☐ Elevator ☐ Other (See Comments)

Well constructed according to provisions of Santa Clara Valley Water District Permit? ☒ Yes ☐ No (See Comments)

Well Location: 121 ft. N/[✓ S] Budd Av 515 ft. E/W NE/o San Tomas Exp

GPS Coordinates: Lat. Long.

Nested, 3 casings

Comments:

#2 2" PVC ; 020 295-275 ; BOC 300 ; Sand 298-272

#3 2" PVC ; 020 230 - 210 ; BOC 235 ; Sand 233 - 207

Distribution: **ORIGINAL**–Permit File; **YELLOW**– Permittee; **PINK**–Well File

Santa Clara Valley Water District

WELL CONSTRUCTION COMPLETION NOTICE

FC 158A (05-16-14)

Inspector: RIPP

Date of Inspection: 03/22/17, 03/23/17

Permit: C20170320002

Well Owner: SCVWD

Owner Well No.: LGRS-01 LGRS-02

Well Registration No.: 07S01W34G002 07S01W34G003

Address of Well Site: JOHN D. MORGAN PARK, SAN TOMAS EXPWY & BUDD AVE

City or County: CAMPBELL

Drilling Company: CASCADE

Consultant: TODD GROUNDWATER

Cond. Bore: —

Conductor Depth: —

Conductor Diameter & Material: —

TD: 400'

Boring Diameter: 12", 6"

BOC: 110', 150'

Casing Diameter & Material: 2" PVC

Slot Size: 0.020"

Screen Interval(s): 90-105', 132-147'

Filter Pack Material: #3 SAND

Filter Pack Interval(s): 87-108', 129-150'

Bent: 82-87', 108-129', 150-400'

Seal Depth: 87'

Sealing Material: ☒ Neat Cement ☐ 10 Sack Sand Slurry ☐ Bentonite Slurry ☐ Other (See Comments)

Drilling Method: ☐ HSA ☐ Mud Rotary ☒ Other (See Comments) ☐ Direct Push ☐ Air Rotary

Well Type: ☒ GW Monitoring ☐ GW Extraction ☐ Vadose Monitoring ☐ Vadose Extraction ☐ Cathodic ☐ Domestic ☐ Agricultural ☐ Municipal/Industrial ☐ Elevator ☐ Other (See Comments)

Well constructed according to provisions of Santa Clara Valley Water District Permit? ☒ Yes ☐ No (See Comments)

Well Location: 125 ft. N/S NW ℄ BUDD AVE 495 ft. E/W NE ℄ SAN TOMAS EXPWY

GPS Coordinates: Lat. Long.

Comments:
SONIC HOLE: 12"Ø 0-150' BGS, 6"Ø 150-400' BGS; NESTED WELL PAIR W/DISCRETE CASINGS: 110' TD SCREENED 90-105' & 150' TD SCREENED 132-147' BGS; GROUTED IN 2 LIFTS: 03/22/17 39-82' & 03/23/17 0-39' BGS

Distribution: **ORIGINAL**–Permit File; **YELLOW**– Permittee; **PINK**–Well File

Appendix N - Morgan Park Monitoring Wells Groundwater Sampling Sheets (Blaine)

WELL GAUGING DATA

Project # 170601-ww1 Date 6-1-17 Client ~~TODD ENG.~~ Todd Groundwater SG

SCVWD - JD MORGAN PARK
Site SAN TOMAS EXWY, & BUDD AVE, CAMPBELL, CA

Well Name Morgan Park	Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or [✓ TOC]	Notes
5	LRGS-01	0759	2					60.04	109.45		
4	LRGS-02	0755	2					68.72	149.15		
3	LRGS-03	0745	2					85.24	233.62		
2	LRGS-04	0740	2					87.00	298.93		
1	LRGS-05	0735	2					111.84	393.64		

WELL MONITORING DATA SHEET

Project #: 170601-MW1	Client: ~~TODD Env.~~ @ Todd Groundwater
Sampler: ww	Date: 6-1-17
Well I.D.: LRGS-01 Morgan Park 5	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 109.45	Depth to Water (DTW): 60.04
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH

DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 69.92

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other______

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, [✓ Other:] new tubing

7.9 (Gals.) X 3 = 23.7 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0906	21.3	8.05	413	>1000	7.9	WL: 60.19
0912	21.5	7.94	415	324	15.8	60.33
0918	21.2	7.83	414	324	23.7	60.40
0920	21.3	7.61	417	>1000	31.6	Increase to 4 gpm
0924	21.4	7.56	413	312	39.5	60.40

Did well dewater? Yes [✓ No] Gallons actually evacuated: 95

Sampling Date: 6-1-17 Sampling Time: 1000 Depth to Water: 60.41

Sample I.D.: LRGS-01 Laboratory: Kiff CalScience Other ALPHA

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See SOW

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 170601-WW1	Client: ~~TODD ENG~~ Todd Groundwater
Sampler: WW, LD, ND	Date: 6-1-17
Well I.D.: LRGS-02 MorgenPark4	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 149.15	Depth to Water (DTW): 68.72
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 84.81	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other________

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, [✓ Other] new tubing

12.9 (Gals.) X 3 = 38.7 Gals.
1 Case Volume, Specified Volumes, Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0733	20.5	8.28	545	>1000	12.9	WL: 68.80
0739	20.3	8.21	496	410	25.8	68.83
0746	20.2	8.20	464	164	38.7	68.85
0754	20.5	7.66	497	76	51.6	68.89
0800	20.3	7.66	501	43	64.5	68.89

Did well dewater? Yes [✓ No]	Gallons actually evacuated: 90.3	
Sampling Date: 6-1-17	Sampling Time: 0820	Depth to Water: 68.89
Sample I.D.: LRGS-02	Laboratory: Kiff CalScience Other ALPHA	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See SOW		
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:		
D.O. (if req'd): Pre-purge: mg/L	Post-purge: mg/L	
O.R.P. (if req'd): Pre-purge: mV	Post-purge: mV	

LL MONITORING DATA SH

Project #: 170601-NW1	Client: TODD
Sampler: ND	Date: 6/6/17
Well I.D.: LRGS-01 Morgan Park 5	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 109.45	Depth to Water (DTW): 60.04
Depth to Free Product: -	Thickness of Free Product (feet): -
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): [✓ YSI] HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 69.92	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other____________

Sampling Method: Bailer, Disposable Bailer, Extraction Port, [✓ Dedicated Tubing], Other: ____________

7.9 (Gals.) X 3 = 23.7 Gals.
1 Case Volume — Specified Volumes — Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0928	22.0	7.56	420	123	47.4	3gpm 60.40
0931	21.9	7.55	417	49	55.3	60.40
0935	21.9	7.55	416	34	63.2	2gpm 60.41
0939	22.1	7.55	420	26	71.1	60.41
0943	22.4	7.56	417	20	78.0	60.41

Did well dewater? Yes [✓ No] Gallons actually evacuated: 95

Sampling Date: 6/6/17 Sampling Time: 1000 Depth to Water: 60.41

Sample I.D.: LRGS-01 Laboratory: Alpha

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) [✓ Other]: See COC

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

1/2

V LL MONITORING DATA SHI

Project #: 170601-WW1	Client: TODD
Sampler: ND	Date: 6/1/17
Well I.D.: LRGS-01 Morgan Park 5	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 109.45	Depth to Water (DTW): 60.04
Depth to Free Product: -	Thickness of Free Product (feet): –
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): [✓ YSI] HACH

DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 69.92

Purge Method: Bailer
Disposable Bailer
Positive Air Displacement
[✓ Electric Submersible]
Waterra
Peristaltic
Extraction Pump
Other____________

Sampling Method: Bailer
Disposable Bailer
Extraction Port
[✓ Dedicated Tubing]
Other: ____________

7.9 (Gals.) X 3 = 23.7 Gals.
1 Case Volume, Specified Volumes, Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0945	22.1	7.55	417	12	85.9	60.41
0950	22.3	7.55	414	9	93.8	60.41
0955	22.0	7.55	420	7	94.0	60.41
0959	21.8	7.55	419	5	95.0	60.41

Did well dewater? Yes [✓ No] Gallons actually evacuated: 95

Sampling Date: 6/6/17 Sampling Time: 1000 Depth to Water: 60.41

Sample I.D.: LRGS-01 Laboratory: Alpha

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) [✓ Other]: See coc

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

2/2

V LL MONITORING DATA SHF

Project #: 170601-WW1	Client: TODD G
Sampler: ND	Date: 6/1/17
Well I.D.: LRGS-02 Morgan Park4	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 149.15	Depth to Water (DTW): 68.72
Depth to Free Product: –	Thickness of Free Product (feet): –
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): [✓ YSI] HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 84.81	

Purge Method:	Bailer	Waterra	Sampling Method:	Bailer
	Disposable Bailer	Peristaltic		Disposable Bailer
	Positive Air Displacement	Extraction Pump		Extraction Port
	[✓ Electric Submersible]	Other____________		Dedicated Tubing
				[✓ Other:] New tubing

12.9 (Gals.) X 3 = 38.7 Gals.
1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0806	20.1	7.65	494	9	77.4	68.89
0812	20.2	7.65	496	5	90.3	68.89

Did well dewater? Yes [✓ No]	Gallons actually evacuated: 90.3	
Sampling Date: 6/1/17	Sampling Time: 0820	Depth to Water: 68.89
Sample I.D.: LRGS-02	Laboratory: Alpha	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) [✓ Other]: See COC	
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: mg/L	Post-purge: mg/L	
O.R.P. (if req'd): Pre-purge: mV	Post-purge: mV	

P 1/2

WELL MONITORING DATA SHEET

Project #: 170601-WW1	Client: ~~TODD ENG~~ ww Todd Groundwater
Sampler: WW, LD	Date: 6-1-17
Well I.D.: LRGS-03 MorganPark3	Well Diameter: [✓ 2] 3 4 6 8 ___
Total Well Depth (TD): 233.62	Depth to Water (DTW): 85.24
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH

DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 114.92

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other___

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, [✓ Other:] new tubing

23.7 (Gals.) X 3 = 71.1 Gals.
1 Case Volume, Specified Volumes, Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
1255	20.5	8.30	558	360	23.7	ww WL: ~~85.60~~ 85.60
1303	21.4	7.92	554	>1000	47.4	WL: 85.59
1310	20.8	8.04	551	172	71.1	WL: 85.59
1319	21.7	8.13	549	90	94.8	WL: 85.64
1325	21.2	7.97	549	64	118.5	WL: 85.64

Did well dewater? Yes [✓ No] Gallons actually evacuated: ~~85.64~~ ww 260.7

Sampling Date: 6-1-17 Sampling Time: 14:15 Depth to Water: 85.64

Sample I.D.: LRGS-03 Laboratory: Kiff CalScience Other ALPHA

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See SOW

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

p 2/3

WELL MONITORING DATA SHEET

Project #: 170601-WMW	Client: ~~TODD ENG.~~ (ISI) Todd Groundwater
Sampler: MW	Date: 6-1-17
Well I.D.: LRGS-03 Morgan Park 3	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 233.62	Depth to Water (DTW): 85.24
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 114.92	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other________

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, [✓ Other:] new tubing

23.7 (Gals.) X 3 = 71.1 Gals.
1 Case Volume — Specified Volumes — Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
1333	20.8	8.26	551	27	142.2	WL: 85.65
1339	20.1	7.71	554	26	165.9	WL: 85.60
1348	21.5	7.79	549	22	189.6	WL: 85.64
1354	20.8	7.85	548	12	213.3	WL: 85.67
~~14~~ 1402	21.7	7.82	550	10	237.0	WL: 85.66

Did well dewater? Yes [✓ No]	Gallons actually evacuated: 260.7	
Sampling Date: 6-1-17	Sampling Time: 1415	Depth to Water: 85.64
Sample I.D.: LRGS-03	Laboratory: ALPHA	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) Other: See SOW	
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D	Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: mg/L	Post-purge: mg/L	
O.R.P. (if req'd): Pre-purge: mV	Post-purge: mV	

p 3/3

ELL MONITORING DATA SE ET

Project #: 170601-WW1	Client: ~~TODD ENG.~~ [illegible] Todd Groundwater
Sampler: WW	Date: 6-1-17
Well I.D.: LRGS-03 Morgan Park 3	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 233.62	Depth to Water (DTW): 85.24
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH

DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 114.92

Purge Method: Bailer
Disposable Bailer
Positive Air Displacement
[✓ Electric Submersible]
Waterra
Peristaltic
Extraction Pump
Other____________

Sampling Method: Bailer
Disposable Bailer
Extraction Port
Dedicated Tubing
Other: new tubing

23.7 (Gals.) X 3 = 71.1 Gals.
1 Case Volume · Specified Volumes · Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
14:0	21.6	7.84	549	4	260.7	WL: 85.64

Did well dewater? Yes [✓ No] Gallons actually evacuated: ~~85.64~~ [illegible] 260.7

Sampling Date: 6-1-17 Sampling Time: 1415 Depth to Water: 85.64

Sample I.D.: LRGS-03 Laboratory: ALPHA

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See SOW

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 170601-WW1	Client: ~~TODD Ent.~~ (SIS) - Todd Groundwater
Sampler: WW L	Date: 6-1-17
Well I.D.: LRGS-04 Morgan Park 2	Well Diameter: [✓ 2] 3 4 6 8 ____
Total Well Depth (TD): 298.93	Depth to Water (DTW): 87.00
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 129.39	

Purge Method: Bailer / Disposable Bailer / Positive Air Displacement / [✓ Electric Submersible] / Waterra / Peristaltic / Extraction Pump / Other________

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / [✓ Other:] new tubing

33.9 (Gals.) X 3 = 101.7 Gals.
1 Case Volume / Specified Volumes / Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
1108	19.3	8.20	571	20	33.9	DTW: 88.64
1119	19.1	7.74	570	8	67.8	DTW: 88.65
1130	19.0	7.84	570	4	101.7	DTW: 88.66

Did well dewater? Yes [✓ No] Gallons actually evacuated: 101.7

Sampling Date: 6-1-17 Sampling Time: 1135 Depth to Water: 88.66

Sample I.D.: LRGS-04 Laboratory: Kiff CalScience Other ALPHA

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See SOW

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 170501-WW1	Client: TODD ENG
Sampler: WW, LD	Date: 6-1-17
Well I.D.: LRGS-05 Morgan Park 1	Well Diameter: [✓ 2] 3 4 6 8 ___
Total Well Depth (TD): 393.64	Depth to Water (DTW): 111.84
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: [✓ PVC] Grade	D.O. Meter (if req'd): YSI HACH

DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 168.20

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, [✓ Electric Submersible], Waterra, Peristaltic, Extraction Pump, Other___

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, [✓ Other:] new tubing

3 GPM

45.1 (Gals.) X 3 = 135.3 Gals.
1 Case Volume · Specified Volumes · Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or [✓ °C])	pH	Cond. (mS or [✓ µS])	Turbidity (NTUs)	Gals. Removed	Observations
0929	19.2	8.10	536	8	45.1	DTW: 112.68
09:44	19.0	7.83	527	~~7.83~~ LD 7	90.2	DTW = 112.68
1000	19.6	7.73	525	5	135.3	DTW = 112.60

Did well dewater? Yes [✓ No]   Gallons actually evacuated: 135.3

Sampling Date: 6-1-17   Sampling Time: 1005   Depth to Water: 112.60

Sample I.D.: LRGS-05   Laboratory: Kiff CalScience Other ALPHA

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see SOW

EB I.D. (if applicable): @ Time   Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELLHEAD INSPECTION CHECKLIST

Page 1 of 1

Date 6-1-17

Client ~~TODD Engineering~~ (LD) → Todd Groundwater

Site Address SAN TOMAS EXPWY & BUDD AVE, CAMPBELL, CA

Job Number 170601-WW1

Technician WW LD

Morgan Park	Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
5	LRGS-01							X	
4	LRGS-02							X	
3	LRGS-03							X	
2	LRGS-04							X	
1	LRGS-05							X	

NOTES: LGRS-03, LGRS-04, LGRS-05, LGRS-02, LGRS-01 Vault under Construction

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME SCVWD – JD MORGAN PARK SAN TOMAS EXWY. & BUDD AVE, CAMPBELL CA

PROJECT NUMBER 170601-WW1

EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
MYRON L ULTRAMETER 2	6242642	6-1-17 0817	pH: 4, 7, 10 cond: 3900uS	pH: 7.00; 10.00 4.00 cond: 3900uS	yes	21.3°C	ww
ⓦ ''	''	''				e	ww
Myron L Ultrameter	6235543	6/07/17	pH 4/7/10 Cond. -3900	4/7/10 [illegible]	Y	19	Nb

Appendix O - Alpha Analytical Reports for Morgan Park Monitoring Wells Water Quality Sampling

Due to size, **Appendices O** and **P** are provided as a separate stand-alone Adobe™ document separate from the remainder of this report.

Appendix P - McCampbell Analytical, Inc. and Santa Clara Valley Water District Analytical Reports

Due to size, **Appendices O** and **P** are provided as a separate stand-alone Adobe™ document separate from the remainder of this report.

Appendix Q - Todd Groundwater Directions to McCampbell Analytical, Inc. for SPLP Leaching and Ha-HCl Extraction Work

SCVWD IPR PROGRAM

Final Instructions for Modified U.S. EPA Synthetic Potential Leaching Procedure (SPLP)

Prepared by Todd Groundwater

Revised March 1, 2017

The leaching test procedure to be used for this investigation is the U.S. Environmental Protection Agency (U.S. EPA) Method 1312 *Synthetic Precipitation Leaching Procedure* (SPLP) extraction method (see attached).

Key specifications and modifications to the SPLP are listed below:

1. The extraction fluid used in the SPLP method shall be stabilized pilot recycled water. The Santa Clara Valley Water District (District) is providing decarbonized permeate (raw recycled water) and two preliminary stabilization recipes to McCampbell Analytical, Inc. (McCampbell, Pittsburgh, CA).

   Anticipated decarbonized recycled water quality is summarized in the right column of the table below:

Parameter	Permeate leaving RO System	Permeate after Decarbonators
pH, s.u.	5.12	6.0
CO_2, mg/L	60	3
Alkalinity, mg/L as $CaCO_3$	8	8
Hardness, mg/L as $CaCO_3$	0.5	0.5

s.u. – standard unit
mg/L – milligrams per liter
RO – reverse osmosis
CO_2 – carbon dioxide
$CaCO_3$ – calcium carbonate

Preliminary target stabilized recycled water quality for protection of mortar-lined pipes and two preliminary stabilization recipes (Case 1 using calcium chloride and sodium hydroxide; Case 2 using calcium chloride and sodium carbonate) are provided in the table below:

Parameter	Target Level to Protect Mortar Lined Pipes	Case 1 $CaCl_2$ / NaOH	Case 2 $CaCl_2$ / Na_2CO_3
Chemical Dose, mg/L		45/13.5	45/36
Alkalinity, mg/L as $CaCO_3$	45	27	44
Hardness, mg/L as $CaCO_3$	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.08	+0.08

$CaCL_2$ – calcium chloride
NAOH – sodium hydroxide
Na_2CO_3 – sodium carbonate
mg/L – milligrams per liter
$CaCO_3$ – calcium carbonate

a. Upon receipt of the raw recycled water, McCampbell shall analyze the water for pH, alkalinity, hardness, and CO_2 levels.

b. Results shall be reported to Rich Stratton, Senior Project Manager with HDR Inc., at Rich.Stratton@hdrinc.com; phone number (916) 817-4819. Todd Groundwater shall be copied on all communications. HDR will adjust the stabilization recipes (if necessary) and provide updated stabilization recipes to McCampbell.

c. McCampbell will apply the stabilization recipes and confirm if stabilized recycled water achieves the target water quality prior to implementation of the SPLP test. Additional adjustments will be recommended by HDR to McCampbell until stabilized recycled water achieves the water quality target.

2. McCampbell shall analyze the stabilized recycled water for selected constituents prior to implementation of the SPLP (see attached Table 1).

3. The 1-to-20 soil-to-extraction fluid ratio specified (Section 2.2 of Method 1312) shall be modified to a 1-to-5 soil-to-extraction fluid ratio (160 grams of soil to 800 milliliters [mL] of extraction fluid). The 1-to-5 ratio better simulates subsurface geochemical conditions during recharge and, in turn, provides more meaningful results in support of the geochemical modeling assessment.

4. The 18-hour tumbling time specified (Section 7.2.11 of Method 1312) shall be increased to 7 days. A 7-day test better simulates subsurface geochemical conditions during recharge and, in turn, provides more meaningful results in support of the geochemical modeling assessment.

5. Rotation of samples over the 7-day test shall be performed for one minute each twice a day (i.e., morning and afternoon). Reduction in rotation time minimizes the potential for elevated turbidity in final leachate and the potential for erroneous metals concentrations.

6. After 7 days, the final leachate shall be collected in 60 mL vials and centrifuged at 2,500 rotations per minute (rpm) for 12 hours.

7. The centrifuged leachate shall be filtered through 0.45-micron filter paper prior to analysis of the following selected constituents:

    - Title 22 metals, plus Cr(VI)
    - Nitrate
    - Perchlorate
    - pH,
    - Eh (ORP)
    - Turbidity

    Centrifuging and filtering further minimizes the potential impact of elevated turbidity in leachate.

8. Appropriate quality control and quality assurance (QA/QC) methods specified in Method 1312 shall be followed. Because volatile organic compounds (VOCs) will not be analyzed, the zero-headspace vessel requirement for VOC analyses is not necessary.

SCVWD IPR PROGRAM

Final Instructions for Hydroxylamine-Hydrochloride Extraction (Ha-HCl) Test

Prepared by Todd Groundwater

October 10, 2016

In addition to the modified *Synthetic Precipitation Leaching Procedure* (SPLP) extraction method, a Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test (Mahoney Geochemical Consulting LLC, 2013; see attached) will be performed on selected soil samples (see sample list on next page). The Ha-HCl procedure measures the amount of hydrous (amorphous) ferric hydroxide (HFO) in a soil sample. HFO is generally considered to be the primary adsorbent for metals in soils. This test is useful for estimating the potential for metals to desorb into solution as recharged recycled water flows through the vadose zone.

The analytical HA-HCl procedure is described below:

To estimate concentration of HFO, 200 milliliter (ml) (0.2 liter [L]) of 0.25 Molar Hydroxylamine-hydrochloride ($NH_2OH{\cdot}HCl$) in 0.25 Molar HCl shall be added to 10 grams of crushed sample (<3 millimeter [mm] or finer all passing) in a 250 mL (plastic) bottle. The bottle shall be placed in a water bath at 50±2 degrees centigrade (°C). The bottles shall be shaken by hand (end over end) at least once per day, or a shaking water bath may be employed. After a minimum of 96 hours, in the water bath, but not to exceed 144 hours, a sample of the extract shall be withdrawn, filtered through 0.45-micron filter paper and analyzed.

The constituents to be analyzed for this investigation include the following:

- Aluminum
- Arsenic
- Calcium
- Copper
- Chromium (total)
- Chromium, hexavalent
- Iron (ferric
- Lead
- Magnesium
- Manganese
- Mercury
- Selenium
- Silica/silicon
- Uranium
- Zinc

Constituents shall be reported at detection limits in micrograms per kilogram (µg/kg).

Final list of soil samples (depth in feet) from Sonic Borings 1 through 5 selected for Ha-HCl extraction test:

Sonic 1: 15, 20, 30 (3 samples)

Sonic 2: 10, 25, 35 (3 samples)

Sonic 3: 10, 15 (2 samples)

Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)

Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

(Total = 26 samples)

Appendix R - Dissolution Sampling Summary Tables

Table R-1 Sonic 1 (Ford Pond Area) Soil Core Sampling Results
Table R-2 Sonic 2 (Ford Pond Area) Soil Core Sampling Results
Table R-3 Sonic 3 (Ford Pond Area) Soil Core Sampling Results
Table R-4 Sonic 4 (Page Ponds) Soil Core Sampling Results
Table R-5 Sonic 5 (McGlincy Ponds) Soil Core Sampling Results
Table R-6 Pre-Buffering Purified Water Analysis by Santa Clara Valley Water District
Table R-7 Pre-Buffering Purified Water Analysis by McCampbell
Table R-8 Stabilized Purified Water Results
Table R-9 Sonic 1 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-10 Sonic 2 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-11 Sonic 3 (Ford Pond Area) Soil Core SPLP Leachate Results
Table R-12 Sonic 4 (Page Ponds) Soil Core SPLP Leachate Results
Table R-13 Sonic 5 (McGlincy Ponds) Soil Core SPLP Leachate Results
Table R-14 Morgan Park Soil Core SPLP Leachate Results
Table R-15 Sonic 1 (Ford Pond Area) Soil Core HH Sample Results
Table R-16 Sonic 2 (Ford Pond Area) Soil Core HH Sample Results
Table R-17 Sonic 3 (Ford Pond Area) Soil Core HH Sample Results
Table R-18 Sonic 4 (Page Ponds) Soil Core HH Sample Results
Table R-19 Sonic 5 (McGlincy Ponds) Soil Core HH Sample Results
Table R-20 Morgan Park Soil Core HH Sample Results

Table R-1
Sonic 1 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**10**	**15**	**20**	**25**	**30**	**35**	**40**
Inorganics	**Method**	**Units**	**RL**							
Nitrate as NO_3	EPA300.0	mg/kg	45	ND	ND	ND	ND	ND	ND	ND
Nitrate as N	EPA300.0	mg/kg	10	ND	ND	ND	ND	ND	ND	ND
Perchlorate	EPA314.0M	mg/kg	0.40	ND	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**12.5-13.0**	**18.0-18.5**	**24.0-24.5**	**28.0-28.5**	**32.5-33.0**	**38.0-38.5**	
Volatile Organic Compounds	**Method**	**Units**	**RL**							
Acetone	SW8260B	mg/kg	0.1	ND	ND	ND	ND	ND	ND	
tert-Amyl methyl ether (TAME)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Bromobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Broimochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Bromodichlromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Bromoform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Bromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
2-Butanone (MEK)	SW8260B	mg/kg	0.02	ND	ND	ND	ND	ND	ND	
t-Butyl alcohol (TBA)	SW8260B	mg/kg	0.05	ND	ND	ND	ND	ND	ND	
n Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
sec-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
tert-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Carbon disulfide	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Carbon tetrachloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Chlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Chloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Chloroform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Chloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
2-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
4-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Dibromochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2-Dibromo-3-chloropropane	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane (EDB)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Dibromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Dichlorodifluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane (1,2-DCA)	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,3-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
2,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,1-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Diisopropyl ether (PIPE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Ethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Ethyl tert-butyl ether (ETBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Freon 113	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Hexachlorobutadiene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Hexachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
2-Hexanone	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Isopropylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
4-Isopropyl toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Methyl-t-butyl ether (MTBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Methylene chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
4-Methyl-2-pentanone (MIBK)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Naphthalene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
n-Propyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Styrene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2,3-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	

Table R-1
Sonic 1 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**12.5-13.0**	**18.0-18.5**	**24.0-24.5**	**28.0-28.5**	**32.5-33.0**	**38.0-38.5**	
Volatile Organic Compounds	**Method**	**Units**	**RL**							
1,1,1-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Trichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Trichlorofluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2,3-Trichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Vinyl Chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Xylenes, Total	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	
Sample feet below ground surface				**12.5-13.0**	**18.0-18.5**	**24.0-24.5**	**28.0-28.5**	**32.5-33.0**	**38.0-38.5**	
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**							
Acenaphthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Acenaphthylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Acetochlor	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzidine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
Benzo (a) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzo (a) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzo (b) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzo (g,h,i) perylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzo (k) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Benzyl Alcohol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
1,1-Biphenyl	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Bis (2-chloroethoxy) Methane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Bis (2-chloroethyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Bis (2-chloroisopropyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Bis (2-ethylhexyl) Adipate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Bis (20ethylhexyl) Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
4-Bromophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Butylbenzene Phthalate	SW8270C	mg/kg	0.25	**1.9**	ND	ND	ND	ND	ND	
4-Chloroaniline	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Chloronaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Chlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
4-Chlorophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Chrysene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Dibenzo (a,h) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Dibenzofuran	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Di-n-butyl-Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
3,3-Dichlorobenzidine	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	
2,4-Dichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Diethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2,4-Dimethylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Dimethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
2,4-Dinitrophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2,4-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2,6-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Di-n-octyl Phthalate	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	
1,2-Diphenylhydrazine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Fluorene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Hexachlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Hexachlorobutadiene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Hexachlorocyclopentadine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
Hexachloroethane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Indeno (1,2,3-cd) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Isophorone	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Methylnaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Methylphenol (o-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
3 & 4-Methylphenol (m,p-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Naphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Nitroaniline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	

Table R-1

Sonic 1 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**12.5-13.0**	**18.0-18.5**	**24.0-24.5**	**28.0-28.5**	**32.5-33.0**	**38.0-38.5**	
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**							
3-Nitroaniline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
4-Nitroaniline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
Nitrobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
4-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
N-Nitrosodiphenylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
N-Nitrosodi-n-prpylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Phenachlorophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	
Phenanthrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Phenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
Pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	

Samples collected by Todd Groundwater September 27, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California; reported October 10, 2016.

EPA - U.S. Environmental Protection Agency

µg/L - micrograms per liter or parts per billion (ppb)

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

Table R-2
Sonic 2 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**5**	**10**	**15**	**20**	**30**	**35**
Inorganics	**Method**	**Units**	**RL**						
Nitrate as NO_3	EPA300.0	mg/kg	45	ND	ND	ND	ND	ND	ND
Nitrate as N	EPA300.0	mg/kg	10	ND	ND	ND	ND	ND	ND
Perchlorate	EPA314.0M	mg/kg	0.40	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**8.5-9.0**	**13.0-13.5**	**18.0-18.5**	**24.0-24.5**	**27.5-28.0**	**33.0-33.5**
Volatile Organic Compounds	**Method**	**Units**	**RL**						
Acetone	SW8260B	mg/kg	0.1	ND	ND	ND	ND	ND	ND
tert-Amyl methy ether (TAME)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Bromobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Broimochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Bromodichlromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Bromoform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Bromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	SW8260B	mg/kg	0.02	ND	ND	ND	ND	ND	ND
t-Butyl alcohol (TBA)	SW8260B	mg/kg	0.05	ND	ND	ND	ND	ND	ND
n Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
sec-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
tert-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Carbon disulfide	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Chlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Chloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Chloroform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Chloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Dibromochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Dibromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Diisopropyl ether (PIPE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Ethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Ethyl tert-butyl ether (ETBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Freon 113	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
2-Hexanone	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Isopropylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
4-Isopropyl toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Methyl-t-butyl ether (MTBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Methylene chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Naphthalene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
n-Propyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Styrene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Tetrachloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND

Table R-2
Sonic 2 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**8.5-9.0**	**13.0-13.5**	**18.0-18.5**	**24.0-24.5**	**27.5-28.0**	**33.0-33.5**
Volatile Organic Compounds	**Method**	**Units**	**RL**						
1,1,1-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Trichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND		
Vinyl Chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Xylenes, Total	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**8.5-9.0**	**13.0-13.5**	**18.0-18.5**	**24.0-24.5**	**27.5-28.0**	**33.0-33.5**
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**						
Acenaphthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Acenaphthylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Acetochlor	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzidine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzo (b) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Benzyl Alcohol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
1,1-Biphenyl	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Bis (2-chloroethoxy) Methane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Bis (2-chloroethyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Bis (2-chloroisopropyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) Adipate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Bis (20ethylhexyl) Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
4-Bromophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Butylbenzene Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
4-Chloroaniline	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Chloronapththalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Chlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
4-Chlorophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Crysene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Dibenzofuran	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Di-n-butyl-Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Diethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Dimethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
4.6-Dinitro-2-methylphenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Isophorone	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Methylphenol (o-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
3 & 4-Methylphenol (m,p-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Naphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND

Table R-2
Sonic 2 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**8.5-9.0**	**13.0-13.5**	**18.0-18.5**	**24.0-24.5**	**27.5-28.0**	**33.0-33.5**
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**						
3-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
4-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
Nitrobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
4-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-prpylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Phenachlorophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND
Phenanthrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Phenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
Pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND

Samples collected by Todd Groundwater September 27, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

µg/L - micrograms per liter or parts per billion (ppb)

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

Table R-3
Sonic 3 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**5**	**10**	**15**	**20**
Inorganics	**Method**	**Units**	**RL**				
Nitrate as NO_3	EPA300.0	mg/kg	45	ND	ND	ND	ND
Nitrate as N	EPA300.0	mg/kg	10	ND	ND	ND	ND
Perchlorate	EPA314.0M	mg/kg	0.40	ND	ND	ND	ND
Sample feet below ground surface				**7.0-7.5**	**14.0-14.5**	**17.5-18.0**	
Volatile Organic Compounds	**Method**	**Units**	**RL**				
Acetone	SW8260B	mg/kg	0.1	ND	ND	ND	
tert-Amyl methy ether (TAME)	SW8260B	mg/kg	0.005	ND	ND	ND	
Benzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Bromobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Broimochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
Bromodichlromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
Bromoform	SW8260B	mg/kg	0.005	ND	ND	ND	
Bromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	
2-Butanone (MEK)	SW8260B	mg/kg	0.02	ND	ND	ND	
t-Butyl alcohol (TBA)	SW8260B	mg/kg	0.05	ND	ND	ND	
n Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	
sec-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	
tert-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Carbon disulfide	SW8260B	mg/kg	0.005	ND	ND	ND	
Carbon tetrachloride	SW8260B	mg/kg	0.005	ND	ND	ND	
Chlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Chloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
Chloroform	SW8260B	mg/kg	0.005	ND	ND	ND	
Chloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
2-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	
4-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	
Dibromochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2-Dibromo-3-chloropropane	SW8260B	mg/kg	0.004	ND	ND	ND	
1,2-Dibromoethane (EDB)	SW8260B	mg/kg	0.005	ND	ND	ND	
Dibromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,3-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,4-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Dichlorodifluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,1-Dichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2-Dichloroethane (1,2-DCA)	SW8260B	mg/kg	0.004	ND	ND	ND	
1,1-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	
cis-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	
trans-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,3-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	
2,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,1-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	
cis-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	
trans-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	
Diisopropyl ether (PIPE)	SW8260B	mg/kg	0.005	ND	ND	ND	
Ethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Ethyl tert-butyl ether (ETBE)	SW8260B	mg/kg	0.005	ND	ND	ND	
Freon 113	SW8260B	mg/kg	0.005	ND	ND	ND	
Hexachlorobutadiene	SW8260B	mg/kg	0.005	ND	ND	ND	
Hexachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
2-Hexanone	SW8260B	mg/kg	0.005	ND	ND	ND	
Isopropylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
4-Isopropyl toluene	SW8260B	mg/kg	0.005	ND	ND	ND	
Methyl-t-butyl ether (MTBE)	SW8260B	mg/kg	0.005	ND	ND	ND	
Methylene chloride	SW8260B	mg/kg	0.005	ND	ND	ND	
4-Methyl-2-pentanone (MIBK)	SW8260B	mg/kg	0.005	ND	ND	ND	
Naphthalene	SW8260B	mg/kg	0.005	ND	ND	ND	
n-Propyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Styrene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,1,1,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,1,2,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
Tetrachloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	
Toluene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2,3-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2,4-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	

Table R-3
Sonic 3 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**7.0-7.5**	**14.0-14.5**	**17.5-18.0**	
Volatile Organic Compounds	**Method**	**Units**	**RL**				
1,1,1-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,1,2-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	
Trichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	
Trichlorofluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2,3-Trichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	
1,2,4-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
1,3,5-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	
Vinyl Chloride	SW8260B	mg/kg	0.005	ND	ND	ND	
Xylenes, Total	SW8260B	mg/kg	0.005	ND	ND	ND	
Sample feet below ground surface				**7.0-7.5**	**14.0-14.5**	**17.5-18.0**	
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**				
Acenaphthene	SW8270C	mg/kg	0.25	ND	ND	ND	
Acenaphthylene	SW8270C	mg/kg	0.25	ND	ND	ND	
Acetochlor	SW8270C	mg/kg	0.25	ND	ND	ND	
Anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzidine	SW8270C	mg/kg	1.3	ND	ND	ND	
Benzo (a) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzo (a) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzo (b) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzo (b) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzo (g,h,i) perylene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzo (k) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	
Benzyl Alcohol	SW8270C	mg/kg	1.3	ND	ND	ND	
1,1-Biphenyl	SW8270C	mg/kg	0.25	ND	ND	ND	
Bis (2-chloroethoxy) Methane	SW8270C	mg/kg	0.25	ND	ND	ND	
Bis (2-chloroethyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	
Bis (2-chloroisopropyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	
Bis (2-ethylhexyl) Adipate	SW8270C	mg/kg	0.25	ND	ND	ND	
Bis (20ethylhexyl) Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	
4-Bromophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	
Butylbenzene Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	
4-Chloroaniline	SW8270C	mg/kg	0.5	ND	ND	ND	
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Chloronapththalene	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Chlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	
4-Chlorophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	
Crysene	SW8270C	mg/kg	0.25	ND	ND	ND	
Dibenzo (a,h) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	
Dibenzofuran	SW8270C	mg/kg	0.25	ND	ND	ND	
Di-n-butyl-Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	
1,2-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
1,3-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
1,4-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
3,3-Dichlorobenzidine	SW8270C	mg/kg	0.5	ND	ND	ND	
2,4-Dichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	
Diethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	
2,4-Dimethylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	
Dimethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	
4.6-Dinitro-2-methylphenol	SW8270C	mg/kg	1.3	ND	ND	ND	
2,4-Dinitrophenol	SW8270C	mg/kg	0.25	ND	ND	ND	
2,4-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	
2,6-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	
Di-n-octyl Phthalate	SW8270C	mg/kg	0.5	ND	ND	ND	
1,2-Diphenylhydrazine	SW8270C	mg/kg	0.25	ND	ND	ND	
Fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	
Hexachlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
Hexachlorobutadiene	SW8270C	mg/kg	0.25	ND	ND	ND	
Hexachlorocyclopentadine	SW8270C	mg/kg	1.3	ND	ND	ND	
Hexachloroethane	SW8270C	mg/kg	0.25	ND	ND	ND	
Indeno (1,2,3-cd) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	
Isophorone	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Methylnaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Methylphenol (o-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	
3 & 4-Methylphenol (m,p-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	
Naphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	

Table R-3
Sonic 3 (Ford Pond Area) Soil Core Sampling Results

Sample feet below ground surface				**7.0-7.5**	**14.0-14.5**	**17.5-18.0**	
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**				
3-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	
4-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	
Nitrobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
2-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	
4-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	
N-Nitrosodiphenylamine	SW8270C	mg/kg	0.25	ND	ND	ND	
N-Nitrosodi-n-prpylamine	SW8270C	mg/kg	0.25	ND	ND	ND	
Phenachlorophenol	SW8270C	mg/kg	1.3	ND	ND	ND	
Phenanthrene	SW8270C	mg/kg	0.25	ND	ND	ND	
Phenol	SW8270C	mg/kg	0.25	ND	ND	ND	
Pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	
1,2,4-Trichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	

Samples collected by Todd Groundwater September 27, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency
µg/L - micrograms per liter or parts per billion (ppb)
mg/L - milligrams per liter or parts per million (ppm)
ND - Not Detected or below Method RL
RL - Reporting Limit
SW - EPA Solid Waste Method

Table R-4
Sonic 4 (Page Ponds) Soil Core Sampling Results

Sample feet below ground surface				**17**	**23**	**50**	**65**	**85**	**95**	**110**	**125**	**155**
Inorganics	**Method**	**Units**	**RL**									
Nitrate as NO_3	EPA300.0	mg/kg	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as N	EPA300.0	mg/kg	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	EPA314.0M	mg/kg	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**17.0-17.5**	**27.0-27.5**	**42.5-43.0**	**65.0-65.5**	**84.5-85.0**	**94.5-95.0**	**109.5-110.0**	**124.5-125.0**	**155.0-155.5**
Volatile Organic Compounds	**Method**	**Units**	**RL**									
Acetone	SW8260B	mg/kg	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Amyl methy ether (TAME)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Broimochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichlromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	SW8260B	mg/kg	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-Butyl alcohol (TBA)	SW8260B	mg/kg	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
n Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diisopropyl ether (PIPE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl tert-butyl ether (ETBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Isopropyl toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-t-butyl ether (MTBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	**0.0079**
Toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table R-4
Sonic 4 (Page Ponds) Soil Core Sampling Results

Sample feet below ground surface				**17.0-17.5**	**27.0-27.5**	**42.5-43.0**	**65.0-65.5**	**84.5-85.0**	**94.5-95.0**	**109.5-110.0**	**124.5-125.0**	**155.0-155.5**
Volatile Organic Compounds	**Method**	**Units**	**RL**									
1,1,1-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**17.0-17.5**	**27.0-27.5**	**42.5-43.0**	**65.0-65.5**	**84.5-85.0**	**94.5-95.0**	**109.5-110.0**	**124.5-125.0**	**155.0-155.5**
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**									
Acenaphthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetochlor	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl Alcohol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Biphenyl	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroethoxy) Methane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroethyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroisopropyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) Adipate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (20ethylhexyl) Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butylbenzene Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronapththalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Crysene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl-Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4.6-Dinitro-2-methylphenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol (o-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
3 & 4-Methylphenol (m,p-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table R-4

Sonic 4 (Page Ponds) Soil Core Sampling Results

Sample feet below ground surface				**17.0-17.5**	**27.0-27.5**	**42.5-43.0**	**65.0-65.5**	**84.5-85.0**	**94.5-95.0**	**109.5-110.0**	**124.5-125.0**	**155.0-155.5**
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**									
3-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-prpylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenachlorophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND

Samples collected by Todd Groundwater September 27, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California;.

EPA - U.S. Environmental Protection Agency

µg/L - micrograms per liter or parts per billion (ppb)

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

Table R-5
Sonic 5 (McGlincy Ponds) Soil Core Sampling Results

Sample feet below ground surface				**9**	**25**	**50**	**65**	**80**	**100**	**125**	**140**	**160**
Inorganics	**Method**	**Units**	**RL**									
Nitrate as NO_3	EPA300.0	mg/kg	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate as N	EPA300.0	mg/kg	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	EPA314.0M	mg/kg	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**8.5-9.0**	**24.5-25.0**	**50.0-50.5**	**65.0-65.5**	**80.0-80.5**	**100.5-101.0**	**125.0-125.5**	**144.5-145.0**	**164.5-165.0**
Volatile Organic Compounds	**Method**	**Units**	**RL**									
Acetone	SW8260B	mg/kg	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Amyl methy ether (TAME)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Broimochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichlromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	SW8260B	mg/kg	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND
t-Butyl alcohol (TBA)	SW8260B	mg/kg	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
n Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)	SW8260B	mg/kg	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diisopropyl ether (PIPE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl tert-butyl ether (ETBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Isopropyl toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-t-butyl ether (MTBE)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propyl benzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table R-5

Sonic 5 (McGlincy Ponds) Soil Core Sampling Results

Sample feet below ground surface				8.5-9.0	24.5-25.0	50.0-50.5	65.0-65.5	80.0-80.5	100.5-101.0	125.0-125.5	144.5-145.0	164.5-165.0
Volatile Organic Compounds	**Method**	**Units**	**RL**									
1,1,1-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	SW8260B	mg/kg	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sample feet below ground surface				**8.5-9.0**	**24.5-25.0**	**50.0-50.5**	**65.0-65.5**	**80.0-80.5**	**100.5-101.0**	**125.0-125.5**	**144.5-145.0**	**164.5-165.0**
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**									
Acenaphthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetochlor	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (a) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl Alcohol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Biphenyl	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroethoxy) Methane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroethyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-chloroisopropyl) Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (2-ethylhexyl) Adipate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis (20ethylhexyl) Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butylbenzene Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronapththalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl Phenyl Ether	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Crysene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo (a,h) anthracene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl-Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Phthalate	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
4.6-Dinitro-2-methylphenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	SW8270C	mg/kg	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadine	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol (o-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
3 & 4-Methylphenol (m,p-Cresol)	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table R-5
Sonic 5 (McGlincy Ponds) Soil Core Sampling Results

Sample feet below ground surface				8.5-9.0	24.5-25.0	50.0-50.5	65.0-65.5	80.0-80.5	100.5-101.0	125.0-125.5	144.5-145.0	164.5-165.0
Semi Volatile Organic Compounds	**Method**	**Units**	**RL**									
3-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitroanilline	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-prpylamine	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenachlorophenol	SW8270C	mg/kg	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND

Samples collected by Todd Groundwater September 27, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

µg/L - micrograms per liter or parts per billion (ppb)

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

Table R-6
Pre-Buffering Purified Water Analysis by Santa Clara Valley Water District

Analyte	Method	Units	RL	AOP Influent Results	AOP Effluent Results
Inorganics					
Bromide	EPA 300.0	mg/L	0.05	ND	ND
Fluoride	EPA 300.0	mg/L	0.1	ND	ND
Nitrate as N	EPA 300.0	mg/L	0.4	2	2.2
Nitrite	SM 4500-NH	mg/L	0.4	ND	ND
Free Ammonia Nitrogen	SM 4500-NH	mg/L		0.26	0.28
Total Ammonia Nitrogen	SM 4500-NH	mg/L		0.89	0.61
Phosphate	EPA 300.0	mg/L	0.05	0.89	0.07
Phosphorous	EPA 300.0	mg/L		ND	ND
Calcium	EPA 200.7	mg/L	0.5	ND	ND
Sodium	EPA 200.7	mg/L		16.6	17.0
Total Organic Carbon	SM 5310C	mg/L	0.3	ND	ND
Anions					
Sulfate (SO_4)	EPA 300.0	mg/L	0.5	ND	ND
Total and Speciated Alkalinity as $CaCO_3$					
Total	SM 2320B	mg $CaCO_3$/L		24	21
Carbonate ($CaCO_3$)	SM 2320B	mg $CaCO_3$/L	5	ND	ND
Carbonate (CO_3)	SM 2320B	CO_3/L	5	ND	ND
Calcium ($CaCO_3$)	EPA 200.7	mg $CaCO_3$/L	3	ND	ND
Bicarbonate (HCO_3)	SM 2320B	mg HCO_3/L		29	26
Bicarbonate ($CaCO_3$)	SM 2320B	mg $CaCO_3$/L		24	21
Hydroxide (OH)	SM 2320B	mg OH/L	5	ND	ND
Hydroxide ($CaCO_3$)	SM 2320B	mg $CaCO_3$/L	5	ND	ND
Additional Parameters					
Hardness, Calcium (as $CaCO_3$)	SM 2340C	MG/L	10	ND	ND
Oganics					
N-Nitrosodiethylamine	EPA 521	ng/L	2	ND	ND
N-Nitrosodimethylamine	EPA 521	ng/L		15.8	3.2
N-Nitrosodi-n-propylamine	EPA 521	ng/L	2	ND	ND

Santa Clara Valley Water District provided laboratory analysis of the RO permeate provided to McCampbell Analytical.

EPA - U.S. Environment al Protection Agency
mg/L - milligram per liter or parts per million (ppm)
µg/L - micrograms per liter or parts per billion (ppb)
ng/L - nanograms per liter (ppt)
ND - Not detected or below method reporting limits (RL)
SM - Standard Method
AOP - advanced oxidation process

Table R-7
Pre-Buffering Purified Water Analysis by McCampbell

Analyte	Method	Units	RL	Vadose Zone Testing	Saturated Zone Testing
CCR 17 Metals + Miscellaneous Elements					
Antimony (Sb)	EPA 200.8	µg/L	0.5	ND	
Arsenic (As)	EPA 200.8	µg/L	0.5	ND	
Barium (Ba)	EPA 200.8	µg/L	5	ND	
Beryllium (Be)	EPA 200.8	µg/L	0.5	ND	
Cadmium (Cd)	EPA 200.8	µg/L	0.25	ND	
Chromium (Cr)	EPA 200.8	µg/L	0.5	ND	
Cobalt (Co)	EPA 200.8	µg/L	0.5	ND	
Copper (Cu)	EPA 200.8	µg/L	2	ND	
Lead (Pb)	EPA 200.8	µg/L	0.5	ND	
Mercury (Hg)	EPA 200.8	µg/L	0.05	ND	
Molybdenum (Mo)	EPA 200.8	µg/L	0.5	ND	
Nickel (Ni)	EPA 200.8	µg/L	0.5	ND	
Selenium (Se)	EPA 200.8	µg/L	0.5	ND	
Silver (Ag)	EPA 200.8	µg/L	0.19	ND	
Thallium (Tl)	EPA 200.8	µg/L	0.5	ND	
Vanadium V)	EPA 200.8	µg/L	0.5	ND	
Zinc (Zn)	EPA 200.8	µg/L	15	ND	
Anions:					
Sulfate (SO_4)	EPA 300.1	mg/L	0.1	0.31	
Total and Speciated Alkalinity as $CaCO_3$					
Total	SM 2320B-1997	mg $CaCO_3$/L	1	25.3	25.5
Carbonate ($CaCO_3$)	SM 2320B-1997	mg $CaCO_3$/L	1	ND	ND
Bicarbonate (HCO_3)	SM 2320B-1997	mg $CaCO_3$/L	1	25.3	25.5
Hydroxide (OH)	SM 2320B-1997	mg $CaCO_3$/L	1	ND	ND
Other Ions/Compounds					
Chlorine (Cl_2) Total	SM 4500-CI E	mg/L	0.4	1.5	
Additional Parameters					
Carbon Dioxide (CO_2)	RSK175	µg/L	250	2,900	1,200
Hardness, Calcium (as $CaCO_3$)	200.8	mg $CaCO_3$/L	0.0824	0.165	0.175
pH	SM 4500H+B-2000	pH units @ 25 °C	±0.05**	6.94	7.55
Total Dissolved Solids (TDS)	SM2540 C-1997	mg/L	10	88.0	
Volatile Organic Compounds					
Acetone	SW8260B	µg/L	10	ND	
tert-Amyl methy ether (TAME)	SW8260B	µg/L	0.5	ND	
Benzene	SW8260B	µg/L	0.5	ND	
Bromobenzene	SW8260B	µg/L	0.5	ND	
Broimochloromethane	SW8260B	µg/L	0.5	ND	
Bromodichlromethane	SW8260B	µg/L	0.5	ND	
Bromoform	SW8260B	µg/L	0.5	ND	
Bromomethane	SW8260B	µg/L	0.5	ND	
2-Butanone (MEK)	SW8260B	µg/L	2	ND	
t-Butyl alcohol (TBA)	SW8260B	µg/L	2	ND	
n Butyl benzene	SW8260B	µg/L	0.5	ND	
sec-Butyl benzene	SW8260B	µg/L	0.5	ND	
tert-Butyl benzene	SW8260B	µg/L	0.5	ND	
Carbon disulfide	SW8260B	µg/L	0.5	ND	
Carbon tetrachloride	SW8260B	µg/L	0.5	ND	
Chlorobenzene	SW8260B	µg/L	0.5	ND	
Chloroethane	SW8260B	µg/L	0.5	ND	
Chloroform	SW8260B	µg/L	0.5	0.73	
Chloromethane	SW8260B	µg/L	0.5	ND	
2-Chlorotoluene	SW8260B	µg/L	0.5	ND	
4-Chlorotoluene	SW8260B	µg/L	0.5	ND	
Dibromochloromethane	SW8260B	µg/L	0.5	ND	
1,2-Dibromo-3-chloropropane	SW8260B	µg/L	0.2	ND	
1,2-Dibromoethane (EDB)	SW8260B	µg/L	0.5	ND	
Dibromomethane	SW8260B	µg/L	0.5	ND	
1,2-Dichlorobenzene	SW8260B	µg/L	0.5	ND	
1,3-Dichlorobenzene	SW8260B	µg/L	0.5	ND	
1,4-Dichlorobenzene	SW8260B	µg/L	0.5	ND	
Dichlorodifluoromethane	SW8260B	µg/L	0.5	ND	
1,1-Dichloroethane	SW8260B	µg/L	0.5	ND	
1,2-Dichloroethane (1,2-DCA)	SW8260B	µg/L	0.5	ND	
1,1-Dichloroethene	SW8260B	µg/L	0.5	ND	
cis-1,2-Dichloroethene	SW8260B	µg/L	0.5	ND	
trans-1,2-Dichloroethene	SW8260B	µg/L	0.5	ND	
1,2-Dichloropropane	SW8260B	µg/L	0.5	ND	
1,3-Dichloropropane	SW8260B	µg/L	0.5	ND	
2,2-Dichloropropane	SW8260B	µg/L	0.5	ND	
1,1-Dichloropropene	SW8260B	µg/L	0.5	ND	

Table R-7
Pre-Buffering Purified Water Analysis by McCampbell

Analyte	Method	Units	RL	Vadose Zone Testing	Saturated Zone Testing
cis-1,3-Dichloropropene	SW8260B	µg/L	0.5	ND	
trans-1,3-Dichloropropene	SW8260B	µg/L	0.5	ND	
Diisopropyl ether (PIPE)	SW8260B	µg/L	0.5	ND	
Ethylbenzene	SW8260B	µg/L	0.5	ND	
Ethyl tert-butyl ether (ETBE)	SW8260B	µg/L	0.5	ND	
Freon 113	SW8260B	µg/L	0.5	ND	
Hexachlorobutadiene	SW8260B	µg/L	0.5	ND	
Hexachloroethane	SW8260B	µg/L	0.5	ND	
2-Hexanone	SW8260B	µg/L	0.5	ND	
Isopropylbenzene	SW8260B	µg/L	0.5	ND	
4-Isopropyl toluene	SW8260B	µg/L	0.5	ND	
Methyl-t-butyl ether (MTBE)	SW8260B	µg/L	0.5	ND	
Methylene chloride	SW8260B	µg/L	0.5	ND	
4-Methyl-2-pentanone (MIBK)	SW8260B	µg/L	0.5	ND	
Naphthalene	SW8260B	µg/L	0.5	ND	
n-Propyl benzene	SW8260B	µg/L	0.5	ND	
Styrene	SW8260B	µg/L	0.5	ND	
1,1,1,2-Tetrachloroethane	SW8260B	µg/L	0.5	ND	
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	0.5	ND	
Tetrachloroethene	SW8260B	µg/L	0.5	ND	
Toluene	SW8260B	µg/L	0.5	ND	
1,2,3-Trichlorobenzene	SW8260B	µg/L	0.5	ND	
1,2,4-Trichlorobenzene	SW8260B	µg/L	0.5	ND	
1,1,1-Trichloroethane	SW8260B	µg/L	0.5	ND	
1,1,2-Trichloroethane	SW8260B	µg/L	0.5	ND	
Trichloroethene	SW8260B	µg/L	0.5	ND	
Trichlorofluoromethane	SW8260B	µg/L	0.5	ND	
1,2,3-Trichloropropane	SW8260B	µg/L	0.5	ND	
1,2,4-Trimethylbenzene	SW8260B	µg/L	0.5	ND	
Vinyl Chloride	SW8260B	µg/L	0.5	ND	
Xylenes, Total	SW8260B	µg/L	0.5	ND	

Raw water sample produced by Santa Clara Valley Water District. Delivered to McCampbell Analytical, Inc. (McCampbell), Pittsburg, CA.

Raw water to be stabilized and used for leaching tests.

* - detected in laboratory method blank

** - accuracy

CCR 17 - California Code of Regulations Title 22 metals also known as California Assessment Manual (CAM) 17 metals

EC - Electrical conductivity or Specific Conductance

EPA - U.S. Environment al Protection Agency

mg/L - milligram per liter or parts per million (ppm)

µg/L - micrograms per liter or parts per billion (ppb)

µmhos/cm - micro mhos per centimeter equivalent to µS/cm (microSiemans per centimeter)

ND - Not detected or below method reporting limits (RL)

SM - Standard Method

SW - Solid Waste Method in accordance with EPA

Table R-8
Stabilized Purified Water Results

Analyte	Method	Units	RL	Results			
				Dose 1	Dose 2	Dose 3	Dose 4
Total and Speciated Alkalinity as $CaCO_3$							
Alkalinity (total)	SM2320 B	mg $CaCO_3$/L	1.00	33	40.4	43.2	39.4
Carbonate alkalinity	SM2320 B	mg $CaCO_3$/L	1.00	ND	ND	ND	ND
Bicarbonate alkalinity	SM2320 B	mg $CaCO_3$/L	1.00	30.1	39.2	43.2	39.4
Hydroxide alkalinity	SM2320 B	mg $CaCO_3$/L	1.00	ND	ND	ND	ND
Ions							
Ammonia (total as N)	EPA350.1	mg/L	0.10	0.40	0.49	0.31	0.43
Bromide (Br)	EPA300.1	mg/L	0.01	ND	ND	ND	ND
Chloride	EPA300.1	mg/L	5.0	40	40	36	36
Fluoride	EPA300.1	mg/L	0.10	ND	ND	ND	ND
Nitrate as N	EPA300.1	mg/L	0.10	2.3	2.3	2.2	2.2
Nitrate as NO_3	EPA300.1	mg/L	0.45	10	10	9.9	9.9
Nitrite as N	EPA300.1	mg/L	0.10	ND	ND	ND	ND
Nitrite as NO_2	EPA300.1	mg/L	0.33	ND	ND	ND	ND
Sulfate (SO_4)	EPA300.1	mg/L	0.10	0.29	0.31	0.26	0.26
Total Keljahl Nitrogen (TKN) as N	EPA351.2	mg/L	0.30	0.44	0.80	0.34	0.45
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.00020	ND	ND	ND	ND
Perchlorate (ClO_4)	EPA314.0	mg/L	0.004	ND	ND	ND	ND
Metals							
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Arsenic (As)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Barium (Ba)	SW6020	mg/L	0.0050	ND	ND	ND	ND
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND
Calcium (Ca)	SW6020	mg/L	0.100	19	19	16	16
Chromium (Cr)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Copper (Cu)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Iron (Fe)	SW6020	mg/L	0.020	ND	ND	ND	ND
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Lithium (Li)	SW6020	mg/L	0.0050	ND	ND	ND	ND
Magnesium (Mg)	SW6020	mg/L	0.020	0.048	0.048	0.041	0.041
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	ND	ND
Mercury (Hg)	SW6020	mg/L	0.000050	ND	ND	ND	ND
Molybdenum (Mo)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Potassium (K)	SW6020	mg/L	0.020	1.1	1.1	1.1	1.2
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Sodium (Na)	SW6020	mg/L	0.10	22	25	26	26
Strontium (Sr)	SW6020	mg/L	0.020	ND	ND	ND	ND
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Vanadium V)	SW6020	mg/L	0.00050	ND	ND	ND	ND
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND
Other Ions/parameters							
Hardness, Calcium (as $CaCO_3$)		mg/L		45	45		
Chlorine (total) (Cl_2)	SM4500-Cl G	mg/L	0.040	ND	0.17	0.14	0.13
Dissolved Organic Carbon (DOC)	EPA415.3	mg/L	0.70	ND	ND	ND	ND
Dissolved oxygen (DO)	SM4500-O G-2001	mg DO/L @ ^oC	1.00	9.07 @ 21.2 ^oC	8.83 @ 21.4 ^oC	8.74 @ 21.6 ^oC	8.74 @ 21.4 ^oC
Inorganic Carbon (IC) as CO_2	EPA415.3	mg/L	2.6	27	34	37	37
Langelier Index (LI)*	SM2330B	calculated at 23 ^oC		-0.01	-0.89	0.2752	-0.4871
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	510 @ 22.7 ^oC	508 @ 23.6 ^oC	455 @ 23.8°C	466 @ 23.7°C
pH	SM4500H+B-2000	pH units @ 25 ^oC	±0.05	8.52	8.7	8.72	7.99
Phosphorous (P)	SW6010B	mg/L	0.050	ND	ND	ND	ND
Silicon (Si)	SW6010B	mg/L	0.050	0.47	0.43	0.45	0.45
Sulfide (total) (S_2)	SM4500 S-2 D	mg/L	0.050	ND	ND	ND	ND
Specific Conductivity (EC)	SM2510 B-1997	µmohs/cm @ 25 ^oC	10	212	227	220	217
Total Dissolved Solids (TDS)	SM2510 B-1997	mg/L	4.80	109	115	108	106
Turbidity	SM2130 B-2001	NTU	0.1	0.122	0.133		

Recycled water (AOP effluent) received by McCampbell Analytical, Inc. October 13, 2016 from Santa Clara Valley Water District

AOP - advanced oxidation process

EPA - U.S. Environment al Protection Agency

SM - Standard Method

SW - Solid Waste Method

mg/L - milligram per liter or parts per million (ppm)

µg/L - micrograms per liter or parts per billion (ppb)

ND - Not detected or below method reporting limits (RL)

N - nitrogen

NTU - Nephalometric Turbidity Units

Table R-9

Sonic 1 (Ford Pond Area) Soil Core SPLP Leachate Results

Sample feet below ground surface				**15**		**20**		**30**		**Primary or Secondary (S) MCL**
Analyte	**Method**	**Units**	**RL**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	
Metals										
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND	ND	ND	1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	0.0013	0.0012	ND	ND	0.0012	0.0013	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.044	0.043	0.041	0.04	0.03	0.031	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100	11	11	21	21	15	15	NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.0041	0.004	0.00066	0.00067	0.0007	0.00067	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	ND	ND	0.001	0.00083	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020	ND	ND	ND	ND	ND	ND	0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050	ND	ND	0.006	0.0061	0.0066	0.0072	NA
Magnesium (Mg)	SW6020	mg/L	0.020	15	15	10	10	6.4	6.5	NA
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	**0.22**	**0.18**	ND	ND	0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	0.000061	ND	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.0073	0.0071	0.0097	0.0097	0.0081	0.0089	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	0.0022	0.0019	ND	0.00053	0.100
Potassium (K)	SW6020	mg/L	0.020	**0.34**	**0.33**	**1.2**	**1.2**	**2.9**	**2.9**	0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10	**26**	**30**	**24**	**28**	**25**	**29**	0.100
Strontium (Sr)	SW6020	mg/L	0.020	0.21	0.2	0.19	0.18	0.14	0.14	NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Vanadium V)	SW6020	mg/L	0.00050	0.0018	0.0019	0.00057	0.00068	0.0023	0.002	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	ND	ND	5.0 (S)
Ions										
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	0.0038	0.0037	0.00037	0.00038	0.00039	0.00039	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.4	2.3	0.31	0.41	2.3	2.3	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	10	10	1.4	1.8	10	10	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	ND	ND	0.006
Physical Parameters										
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	463 @ 21.7°C	447 @ 21.5°C	436 @ 21.2°C	429 @ 21.5°C	414 @ 22.0°C	395 @ 21.4°C	NA
pH	SM4500H+B-2000	pH units @ 25 ^{o}C	±0.05	8.33	8.38	8.09	8.13	8.2	8.28	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.121	0.167	0.33	0.212	0.209	0.228	<5.0

mg/L - milligram per liter or parts per million (ppm)

ND - Not detected or below method reporting limits (RL)

N - nitrogen

MCL - maximum contaminant level

NO_3 - nitrate

NTU - Nephalometric Turbidity Units

NA - not applicable

mV vs. NHE - microvolt versus normal hydrogen electrode

SPLP - synthetic precipitation leaching potential

Table R-10

Sonic 2 (Ford Pond Area) Soil Core SPLP Leachate Results

Sample feet below ground surface				**10**		**25**		**35**		**Primary or Secondary (S) MCL**
Analyte	**Method**	**Units**	**RL**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	
Metals										
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND	ND	ND	1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	0.0017	0.0017	0.00052	0.00053	0.00098	0.00098	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.033	0.033	0.021	0.02	0.017	0.018	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100	8.4	8.1	11	11	14	15	NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.0069	0.0068	0.00082	0.00079	0.00098	0.0012	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	0.001	0.00091	ND	ND	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020	ND	ND	ND	ND	ND	ND	0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050	ND	0.0051	ND	ND	ND	0.0051	NA
Magnesium (Mg)	SW6020	mg/L	0.020	18	18	5.3	5.2	6.4	6.7	NA
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	ND	ND	ND	ND	0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	0.00006	0.000066	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.0088	0.0087	0.0058	0.0056	0.01	0.011	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.100
Potassium (K)	SW6020	mg/L	0.020	**0.36**	**0.38**	**1.5**	**1.5**	**2.1**	**2.1**	0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10	**25**	**27**	**23**	**25**	**23**	**25**	0.100
Strontium (Sr)	SW6020	mg/L	0.020	0.2	0.19	0.11	0.11	0.12	0.13	NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Vanadium V)	SW6020	mg/L	0.00050	0.0027	0.0026	0.00084	0.00086	0.0016	0.0017	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	ND	ND	5.0 (S)
Ions										
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	**0.0066**	**0.0068**	0.00055	0.00039	0.00072	0.00087	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.4	2.4	2.4	2.4	2.3	2.3	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	10	10	11	11	10	10	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	ND	ND	0.006
Physical Parameters										
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	376 @ 21.0°C	368 @ 21.4°C	357 @ 21.7°C	331 @ 22.5°C	291 @ 22.0°C	298 @ 21.5°C	NA
pH	SM4500H+B-2000	pH units @ 25 °C	±0.05	8.53	8.51	8.1	7.88	8.09	8.17	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.181	0.437	0.218	0.153	0.271	0.158	<5.0

mg/L - milligram per liter or parts per million (ppm)
ND - Not detected or below method reporting limits (RL)
N - nitrogen
MCL - maximum contaminant level
NO_3 - nitrate
NTU - Nephalometric Turbidity Units

NA - not applicable
mV vs. NHE - microvolt versus normal hydrogen electrode
SPLP - synthetic precipitation leaching potential

Table R-11
Sonic 3 (Ford Pond Area) Soil Core SPLP Leachate Results

Sample feet below ground surface				**10**		**15**		**Primary or Secondary (S) MCL**
Analyte	**Method**	**Units**	**RL**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	
Metals								
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND	1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	0.00055	ND	ND	0.00059	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.024	0.024	0.022	0.022	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100	13	13	12	12	NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.001	0.0013	0.00097	0.0011	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	ND	ND	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020	ND	ND	ND	ND	0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050	ND	ND	ND	ND	NA
Magnesium (Mg)	SW6020	mg/L	0.020	5.9	5.9	5.6	5.7	NA
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	ND	ND	0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.0033	0.0035	0.0024	0.0027	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.100
Potassium (K)	SW6020	mg/L	0.020	**1.6**	**1.6**	**1.6**	**1.7**	0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10	**22**	**25**	**22**	**25**	0.100
Strontium (Sr)	SW6020	mg/L	0.020	0.13	0.13	0.12	0.12	NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND	NA
Vanadium V)	SW6020	mg/L	0.00050	0.00071	0.00077	0.00075	0.00086	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	5.0 (S)
Ions								
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	0.00073	0.00096	0.00067	0.00077	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.3	2.3	2.3	2.3	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	10	10	10	10	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	0.006
Physical Parameters								
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	302 @ 21.5°C	302 @ 21.8°C	299 @ 22.2°C	300 @ 21.9°C	NA
pH	SM4500H+B-2000	pH units @ 25 °C	±0.05	7.97	8.01	7.82	7.96	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.169	0.215	0.308	0.345	<5.0

mg/L - milligram per liter or parts per million (ppm)
ND - Not detected or below method reporting limits (RL)
N - nitrogen
MCL - maximum contaminant level
NO_3 - nitrate
NTU - Nephalometric Turbidity Units

NA - not applicable
mV vs. NHE - microvolt versus normal hydrogen electrode
SPLP - synthetic precipitation leaching potential

Table R-12
Sonic 4 (Page Ponds) Soil Core SPLP Leachate Results

Sample feet below ground surface				17		23		50		65		85		95		110		125		155		Primary or Secondary (S) MCL
Analyte	**Method**	**Units**	**RL**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	
Metals																						
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	0.0006	0.00058	ND	ND	ND	ND	0.00054	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.011	0.01	0.013	0.014	0.012	0.013	0.011	0.012	0.013	0.013	0.015	0.015	0.012	0.013	0.012	0.012	0.013	0.012	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00026	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100	9.4	9.5	11	12	9.8	10	9.4	9.6	11	12	13	13	12	13	12	12	13	13	NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.00071	0.00065	0.0007	0.00074	0.00087	0.00097	0.00061	0.00074	0.00064	0.00067	0.0014	0.0011	0.00086	0.0016	0.001	0.0011	0.00096	0.00085	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020	0.026	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Magnesium (Mg)	SW6020	mg/L	0.020	4.2	4.2	4.7	4.7	4.3	4.5	4.3	4.3	4.4	4.5	4.6	4.6	4.3	4.6	4.4	4.4	4.9	4.6	NA
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	0.023	0.024	0.024	0.021	0.047	0.036	0.039	0.046	ND	ND	0.034	0.024	0.024	0.027	0.024	0.03	0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.30E-05	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.0027	0.0032	0.008	0.0068	0.0071	0.01	0.017	0.013	0.014	0.013	0.0042	0.0043	0.0093	0.0068	0.012	0.013	0.0062	0.0041	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	0.00053	0.00051	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.100
Potassium (K)	SW6020	mg/L	0.020	**1.8**	**1.8**	**2.3**	**2.2**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1.4**	**1**	**1**	**1.3**	**1.1**	**1**	**1**	**1.1**	**1.1**	0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10	**27**	**29**	**24**	**26**	**26**	**28**	**29**	**30**	**25**	**27**	**22**	**24**	**23**	**25**	**23**	**25**	**23**	**25**	0.100
Strontium (Sr)	SW6020	mg/L	0.020	0.072	0.071	0.08	0.082	0.056	0.058	0.056	0.059	0.062	0.064	0.072	0.073	0.065	0.071	0.068	0.068	0.074	0.071	NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Vanadium V)	SW6020	mg/L	0.00050	0.0018	0.0019	0.0014	0.0015	0.00093	0.001	0.0023	0.0019	0.002	0.0019	0.00098	0.00092	0.0019	0.0015	0.0016	0.0016	0.0015	0.0013	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0 (S)
Ions																						
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	0.00047	0.00039	0.0004	0.0004	0.0006	0.00076	0.00034	0.00041	0.00035	0.00041	0.0011	0.00083	0.00057	0.0013	0.00069	0.00081	0.00062	0.00066	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006
Physical Parameters																						
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	301 @ 21.7°C	297 @ 21.6°C	294 @ 21.9°C	281 @ 22.4°C	286 @ 22.3°C	283 @ 22.1°C	289 @ 22.0°C	288 @ 22.1°C	286 @ 22.4°C	276 @ 21.9°C	294 @ 21.7°C	297 @ 21.8°C	293 @ 21.9°C	296 @ 22.0°C	295 @ 21.8°C	292 @ 21.7°C	294 @ 21.7°C	287 @ 21.9°C	NA
pH	SM4500H+B-2000	pH units @ 25 °C	±0.05	7.87	7.89	7.85	7.96	7.83	7.88	7.86	7.96	7.88	7.91	7.77	7.88	7.86	7.9	7.75	7.93	7.85	7.91	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.544	0.287	0.268	0.252	0.285	0.192	0.298	0.334	0.486	0.341	0.319	0.413	0.433	0.345	0.388	0.241	0.278	0.41	<5.0

mg/L - milligram per liter or parts per million (ppm)
ND - Not detected or below method reporting limits (RL)
N - nitrogen
MCL - maximum contaminant level
NO_3 - nitrate
NTU - Nephalometric Turbidity Units

NA - not applicable
mV vs. NHE - microvolt versus normal hydrogen electrode
SPLP - synthetic precipitation leaching potential

Table R-13
Sonic 5 (McGlincy Ponds) Soil Core SPLP Leachate Results

Sample feet below ground surface				9		25		50		65		80		100		125		140		160		Primary or Secondary (S) MCL
Analyte	**Method**	**Units**	**RL**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	**Dose 1**	**Dose 2**	
Metals																						
Aluminum (Al)	SW6020	mg/L	0.050	ND	ND	ND	ND	ND	ND	ND	0.062	ND	ND	ND	ND	ND	ND	ND	ND	0.063	ND	1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	0.00066	0.00071	0.00051	0.00054	ND	ND	0.00059	0.00064	ND	ND	ND	ND	ND	ND	0.00066	0.00074	0.00062	0.00062	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.013	0.013	0.013	0.013	0.017	0.018	0.015	0.016	0.016	0.017	0.015	0.015	0.016	0.016	0.0099	0.01	0.037	0.012	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100	8.6	8.8	9.3	9.4	13	13	10	11	13	13	13	13	13	13	11	11	11	11	NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.00076	0.00054	0.00073	0.0008	0.0025	0.0026	0.00094	0.00071	0.0011	0.00089	0.0009	0.00084	0.00073	0.00057	0.00052	0.00051	0.00061	0.00071	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	0.00052	ND	ND	ND	ND	0.00052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020	0.029	ND	ND	ND	ND	ND	0.032	0.049	ND	ND	ND	ND	ND	ND	0.021	0.022	0.031	ND	0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Magnesium (Mg)	SW6020	mg/L	0.020	4.2	4.1	4.1	4.2	4.6	4.7	3.9	4.1	4.5	4.5	4.5	4.6	4.1	4.3	3.7	3.7	3.7	3.8	NA
Manganese (Mn)	SW6020	mg/L	0.020	ND	ND	ND	ND	ND	ND	0.059	0.033	ND	ND	ND	ND	0.047	0.048	0.044	0.04	0.022	0.022	0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	0.000057	ND	ND	0.000055	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.005	0.0046	0.01	0.012	0.0028	0.0028	0.0084	0.0096	0.0042	0.0051	0.0023	0.0021	0.0054	0.0071	0.016	0.019	0.015	0.012	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.100
Potassium (K)	SW6020	mg/L	0.020	**2.2**	**2.2**	**2.1**	**2.1**	**1.6**	**1.5**	**2.2**	**2.3**	**1.6**	**1.6**	**1.1**	**1**	**1.5**	**1.5**	**1.8**	**1.9**	**1.5**	**1.5**	0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10	**28**	**30**	**26**	**29**	**23**	**25**	**26**	**29**	**24**	**26**	**23**	**26**	**24**	**27**	**25**	**30**	**27**	**29**	0.100
Strontium (Sr)	SW6020	mg/L	0.020	0.07	0.07	0.071	0.072	0.074	0.076	0.06	0.063	0.07	0.071	0.071	0.073	0.068	0.07	0.057	0.057	0.059	0.061	NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Vanadium V)	SW6020	mg/L	0.00050	0.0016	0.0017	0.0013	0.0014	0.0013	0.0012	0.002	0.0022	0.001	0.001	0.0013	0.0013	0.0011	0.0013	0.0041	0.0044	0.0041	0.0044	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013	ND	5.0 (S)
Ions																						
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	0.00043	0.00031	0.00039	0.0005	0.0022	0.0022	0.00066	0.00038	0.00067	0.00063	0.00056	0.00055	0.00039	0.00033	0.00027	0.00023	0.00033	0.00041	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.3	2.3	2.3	2.2	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006
Physical Parameters																						
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	288 @ 22.2°C	283 @ 22.0°C	290 @ 21.8°C	285 @ 21.7°C	292 @ 21.8°C	288 @ 22.0°C	287 @ 22.0°C	290 @ 21.8°C	297 @ 21.8°C	294 @ 21.9°C	298 @ 22.0°C	294 @ 22.2°C	289 @ 22.1°C	288 @ 22.0°C	291 @ 21.9°C	291 @ 22.0°C	285 @ 22.0°C	278 @ 22.1°C	NA
pH	SM4500H+B-2000	pH units @ 25 °C	±0.05	7.85	7.95	7.85	7.95	7.83	7.91	7.96	7.94	7.79	7.89	7.8	7.88	7.97	8.06	7.9	7.95	7.93	8.07	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.348	0.229	0.409	0.348	0.482	0.339	0.289	0.369	0.248	0.371	0.362	0.455	0.289	0.216	0.348	0.316	0.296	0.396	<5.0

mg/L - milligram per liter or parts per million (ppm)
ND - Not detected or below method reporting limits (RL)
N - nitrogen
MCL - maximum contaminant level
NO_3 - nitrate
NTU - Nephalometric Turbidity Units

NA - not applicable
mV vs. NHE - microvolt versus normal hydrogen electrode
SPLP - synthetic precipitation leaching potential

Table R-14
Morgan Park Soil Core SPLP Leachate Results

Sample feet below ground surface				131		195		283		Primary or Secondary (S) MCL
Analyte	**Method**	**Units**	**RL**	**Dose 3**	**Dose 4**	**Dose 3**	**Dose 4**	**Dose 3**	**Dose 4**	
Metals										
Aluminum (Al)	SW6020	mg/L	0.050							1.0
Antimony (Sb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.006
Arsenic (As)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.010
Barium (Ba)	SW6020	mg/L	0.0050	0.013	0.013	0.017	0.017	0.011	0.011	1.0
Beryllium (Be)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.004
Cadmium (Cd)	SW6020	mg/L	0.00025	ND	ND	ND	ND	ND	ND	0.005
Calcium (Ca)	SW6020	mg/L	0.100							NA
Chromium (Cr)	SW6020	mg/L	0.00050	0.0007	0.00062	0.0011	0.0012	0.00068	0.00058	0.050
Cobalt (Co)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Copper (Cu)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	1.3
Iron (Fe)	SW6020	mg/L	0.020							0.300 (S)
Lead (Pb)	SW6020	mg/L	0.00050	ND	ND	ND	ND	0.049	ND	0.015
Lithium (Li)	SW6020	mg/L	0.0050							NA
Magnesium (Mg)	SW6020	mg/L	0.020							NA
Manganese (Mn)	SW6020	mg/L	0.020							0.050 (S)
Mercury (Hg)	SW6020	mg/L	0.000050	ND	ND	ND	ND	ND	ND	0.002
Molybdenum (Mo)	SW6020	mg/L	0.00050	0.0053	0.0054	0.0036	0.0034	0.0066	0.0075	NA
Nickel (Ni)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.100
Potassium (K)	SW6020	mg/L	0.020							0.100
Selenium (Se)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Silver (Ag)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	0.100
Sodium (Na)	SW6020	mg/L	0.10							0.100
Strontium (Sr)	SW6020	mg/L	0.020							NA
Thallium (Tl)	SW6020	mg/L	0.00050	ND	ND	ND	ND	ND	ND	NA
Uranium (U)	SW6020	mg/L	0.00050							NA
Vanadium V)	SW6020	mg/L	0.00050	0.0027	0.0027	0.0024	0.0022	0.004	0.0042	NA
Zinc (Zn)	SW6020	mg/L	0.005	ND	ND	ND	ND	ND	ND	5.0 (S)
Ions										
Chromium-VI (Cr(VI) or Hexavalent Chromium	EPA218.6	mg/L	0.0002	0.00053	0.00057	0.001	0.0012	0.00063	0.00054	0.006
Nitrate as N	EPA300.1	mg/L	0.10	2.2	2.2	2.2	2.2	2.2	2.2	10
Nitrate as NO_3	EPA300.1	mg/L	0.45	9.7	9.8	9.7	9.7	9.9	9.9	45
Perchlorate	EPA 314.0	mg/L	0.004	ND	ND	ND	ND	ND	ND	0.006
Physical Parameters										
Oxidation-Reduction Potential (ORP)	RSK175	mV vs. NHE	±10	472 @ 24.6°C	461 @ 24.3°C	460 @ 24.2°C	461 @ 23.9°C	462 @ 24.0°C	465 @ 24.0°C	NA
pH	SM4500H+B-2000	pH units @ 25 °C	±0.05	7.98	8.11	7.94	7.96	8.1	8.06	6.5-8.5
Turbidity	SM2130 B-2001	NTU	0.1	0.751	0.532	0.180	0.246	0.356	0.412	<5.0

mg/L - milligram per liter or parts per million (ppm)
ND - Not detected or below method reporting limits (RL)
N - nitrogen
MCL - maximum contaminant level
NO_3 - nitrate
NTU - Nephalometric Turbidity Units

NA - not applicable
mV vs. NHE - microvolt versus normal hydrogen electrode
SPLP - synthetic precipitation leaching potential

Table R-15

Sonic 1 (Ford Pond Area) Soil Core HH Sample Results

Sample feet below ground surface				**15**	**25**	**30**
Analyte	**Method**	**Units**	**RL**			
Metals						
Aluminum (Al)	HH SW6020	mg/kg	200	9,600	11,000	12,000
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	2.2	2.9
Calcium (Ca)	HH SW6020	mg/kg	400	4200	3,300	4,300
Chromium (Cr)	HH SW6020	mg/kg	2.0	33	41	39
Copper (Cu)	HH SW6020	mg/kg	2.0	20	20	21
Iron (Fe)	HH SW6020	mg/kg	80	22,000	25,000	27,000
Lead (Pb)	HH SW6020	mg/kg	2.0	6.9	5.6	5.7
Magnesium (Mg)	HH SW6020	mg/kg	80	9300	12,000	11,000
Manganese (Mn)	HH SW6020	mg/kg	20	450	660	660
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND	ND
Silicon	HH SW6010B	mg/kg	15	1,900	2,300	2,700
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	50	45	50

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Table R-16

Sonic 2 (Ford Pond Area) Soil Core HH Sample Results

Sample feet below ground surface				**10**	**25**	**35**
Analyte	**Method**	**Units**	**RL**			
Metals						
Aluminum (Al)	HH SW6020	mg/kg	200	11,000	11,000	9,300
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	ND	ND
Calcium (Ca)	HH SW6020	mg/kg	400	9,300	2,600	4,500
Chromium (Cr)	HH SW6020	mg/kg	2.0	35	43	38
Copper (Cu)	HH SW6020	mg/kg	2.0	22	19	17
Iron (Fe)	HH SW6020	mg/kg	80	25,000	24,000	21,000
Lead (Pb)	HH SW6020	mg/kg	2.0	8.9	5.2	5
Magnesium (Mg)	HH SW6020	mg/kg	80	11,000	12,000	11,000
Manganese (Mn)	HH SW6020	mg/kg	20	560	670	1,400
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND	ND
Silicon	HH SW6010B	mg/kg	15	2,700	2,400	2,400
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	59	43	39

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Table R-17

Sonic 3 (Ford Pond Area) Soil Core HH Sample Results

Sample feet below ground surface				**10**	**15**
Analyte	**Method**	**Units**	**RL**		
Metals					
Aluminum (Al)	HH SW6020	mg/kg	200	7,800	9,300
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	ND
Calcium (Ca)	HH SW6020	mg/kg	400	1,800	2,400
Chromium (Cr)	HH SW6020	mg/kg	2.0	24	37
Copper (Cu)	HH SW6020	mg/kg	2.0	14	16
Iron (Fe)	HH SW6020	mg/kg	80	17,000	21,000
Lead (Pb)	HH SW6020	mg/kg	2.0	4	5
Magnesium (Mg)	HH SW6020	mg/kg	80	6,700	11,000
Manganese (Mn)	HH SW6020	mg/kg	20	480	480
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND
Silicon	HH SW6010B	mg/kg	15	2,100	2,200
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	31	39

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Table R-18

Sonic 4 (Page Ponds) Soil Core HH Sample Results

Sample feet below ground surface				17	23	50	65	85	95	110	125	155
Analyte	**Method**	**Units**	**RL**									
Metals												
Aluminum (Al)	HH SW6020	mg/kg	200	9,900	9,100	9,400	9,900	11,000	11,000	9,800	10,000	10,000
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium (Ca)	HH SW6020	mg/kg	400	3,500	2,900	3,500	3,900	4,100	3,600	3,500	3,700	4,100
Chromium (Cr)	HH SW6020	mg/kg	2.0	30	38	31	28	31	34	57	31	38
Copper (Cu)	HH SW6020	mg/kg	2.0	21	19	18	18	23	21	20	22	21
Iron (Fe)	HH SW6020	mg/kg	80	20,000	19,000	19,000	19,000	21,000	21,000	21,000	21,000	19,000
Lead (Pb)	HH SW6020	mg/kg	2.0	5	5	5	5	6	6	5	5	4
Magnesium (Mg)	HH SW6020	mg/kg	80	8,100	8,100	6,200	6,500	7,700	6,700	6,600	7,500	9,700
Manganese (Mn)	HH SW6020	mg/kg	20	340	380	410	390	410	570	550	500	430
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND	ND	ND	0	ND	ND	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND	ND	ND	0	ND	ND	ND	ND
Silicon	HH SW6010B	mg/kg	15	2,900	2,700	2,900	3,000	2,900	3,200	2,900	2,900	2,700
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND	ND	ND	0	ND	ND	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	43	40	40	41	46	44	41	48	41

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Table R-19
Sonic 5 (McGlincy Ponds) Soil Core HH Sample Results

Sample feet below ground surface				9	25	50	65	80	100	125	140	160
Analyte	**Method**	**Units**	**RL**									
Metals												
Aluminum (Al)	HH SW6020	mg/kg	200	11,000	10,000	8,800	10,000	8,600	8,600	12,000	11,000	13,000
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	ND	2	ND	ND	2	ND	ND	ND
Calcium (Ca)	HH SW6020	mg/kg	400	3,900	3,700	3,100	3,900	3,000	3,000	4,900	4,400	4,600
Chromium (Cr)	HH SW6020	mg/kg	2.0	32	29	25	29	32	27	28	37	41
Copper (Cu)	HH SW6020	mg/kg	2.0	27	21	20	23	21	21	23	23	28
Iron (Fe)	HH SW6020	mg/kg	80	23,000	20,000	19,000	19,000	19,000	19,000	19,000	22,000	24,000
Lead (Pb)	HH SW6020	mg/kg	2.0	5	4	6	4	5	5	4	5	5
Magnesium (Mg)	HH SW6020	mg/kg	80	8,700	7,500	5,700	7,300	7,000	6,600	7,700	7,600	11,000
Manganese (Mn)	HH SW6020	mg/kg	20	410	310	390	390	390	400	390	450	470
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silicon	HH SW6010B	mg/kg	15	3,300	3,000	3,000	3,400	2,900	3,200	3,700	3,300	3,500
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	47	39	50	39	44	46	37	43	46

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Table R-20
Morgan Park Soil Core HH Sample Results

Sample feet below ground surface				131	195	283
Analyte	**Method**	**Units**	**RL**			
Metals						
Aluminum (Al)	HH SW6020	mg/kg	200	10,000	9,800	9,900
Arsenic (As)	HH SW6020	mg/kg	2.0	ND	ND	ND
Calcium (Ca)	HH SW6020	mg/kg	400	4,000	3,900	4,200
Chromium (Cr)	HH SW6020	mg/kg	2.0	33	30	52
Copper (Cu)	HH SW6020	mg/kg	2.0	26	26	24
Iron (Fe)	HH SW6020	mg/kg	80	21,000	23,000	21,000
Lead (Pb)	HH SW6020	mg/kg	2.0	5	8	4
Magnesium (Mg)	HH SW6020	mg/kg	80	7,900	7,100	8,300
Manganese (Mn)	HH SW6020	mg/kg	20	410	490	440
Mercury (Hg)	HH SW6020	mg/kg	0.20	ND	ND	ND
Selenium (Se)	HH SW6020	mg/kg	2.0	ND	ND	ND
Silicon	HH SW6010B	mg/kg	15	7,100	8,300	6,900
Uranium (U)	HH SW6020	mg/kg	2.0	ND	ND	ND
Zinc (Zn)	HH SW6020	mg/kg	20	46	60	40

Samples collected by Todd Groundwater September 26, 2016. Samples analyzed by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California.

EPA - U.S. Environmental Protection Agency

mg/L - milligrams per liter or parts per million (ppm)

ND - Not Detected or below Method RL

RL - Reporting Limit

SW - EPA Solid Waste Method

HH - hydroxylamine-hydrochloride

Appendix S - Mahoney Geochemical Consulting, LLC Technical Memorandum

Technical Memorandum

TO: William Motzer, Ph.D., Sally McCraven, Ed Lin - Todd Groundwater

FROM: John Mahoney, Ph.D.

DATE: Aug 31, 2017

SUBJECT: Geochemical Modeling of Leaching of Alluvial Sediments in the Santa Clara Area – UPDATED

UPDATE

This memo discusses results from two sampling efforts of the alluvial sediments in the Santa Clara area. The original sampling efforts took place at the Ford Road Ponds (Cores 1, 2 and 3), Page Ponds (Core 4) and McGlincey Ponds (Core 5). A set of samples were collected in June 2017 in the Morgan Park Area. The original samples were discussed and evaluated in an earlier version of this memo. This updated version includes an evaluation of three the Morgan Park Samples. This updated memo also evaluated five ground water samples.

INTRODUCTION

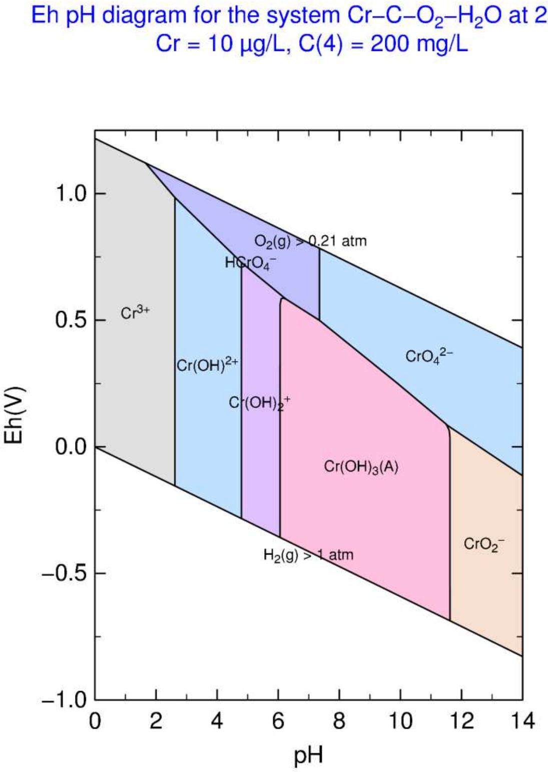
This memo will examine the behavior of chromium and other trace elements based upon the laboratory testing program conducted on the sonic core samples. Because the leachate concentrations of many of the other potential constituents of concern, such as arsenic, were reported to be at low concentrations in the Hydroxylamine-HCl (HH) extractions as well as in the Dose 1 and Dose 2 batch leaching tests there are few numerical results to support detailed models for those parameters. In many cases, the majority of the results were classified as non-detect for these tests. For the Dose 1 and Dose 2 leach tests this applies to the elements: antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, uranium, and zinc. Molybdenum was reported in all of the Dose 1 and Dose 2 leachates but concentrations were generally low with all samples less than 0.02 mg/L and most are less than 0.01 mg/L. All of these concentrations are at low enough levels to provide strong evidence that the alluvial sediments are not significant sources of these metals.

GEOCHEMISTRY OF CHROMIUM

Chromium consistently was identified in the HH extracts in the range of 20 to 57 mg/Kg, with an average concentration of about 33 mg/Kg. Dissolved concentrations were present in all of the Dose 1 and Dose 2 leachate tests; concentrations were all less than 0.007 mg/L.

An overview of the geochemical behavior of chromium will be discussed prior to an evaluation of the site specific results. In most natural ground water systems chromium is usually present as either Cr(6), also known as hexavalent chromium, or as the trivalent form Cr(3). Figure 1 is an Eh pH diagram showing the distribution of these two valences. Hexavalent chromium is represented by the CrO_4^{2-} and $HCrO_4^-$ species present in the upper (oxidizing) portion of the figure. The remaining species are Cr(3) and include the solid phase $Cr(OH)_3$(A), where the (A) stands for amorphous.

Figure 1. Eh – pH diagram for the system Cr-C-O-H2O at 25°C. Prepared using PhreePlot (Kinniburgh and Cooper 2011).



In selecting the geochemical modeling approach the chemical characteristics of chromium were considered in light of the geochemical conditions related to the proposed (pilot water) injection solution, and the nature of the unsaturated alluvial deposits. Consequently, a sorption based model was developed to evaluate the presence or absence of hexavalent chromium in these sediments. The model relies upon surface complexation reactions as defined by Dzombak and Morel (1990).

Model assumptions were confirmed and constrained by the laboratory results. Additional details about surface complexation models can be found in Langmuir (1997).

Hexavalent chromium is considered to be soluble and so it will not form solid phases at the low concentrations encountered in the leachate tests. It can form surface complexes that will adsorb onto ferric hydroxide surfaces. But at the pH values encountered in the Dose 1 and Dose 2 leach tests, the amount of sorbed Cr(6) is slight.

Surface ionization and complexation models (SICMs) allow for the calculation of adsorption reactions onto mineral surfaces. In these models the primary mineral is usually ferrihdyrite [$Fe(OH)_3$] and it is commonly called hydrous ferric oxide (HFO). The atoms that make up the surface form chemical bonds with components in solution to form surface complexes. The basic premise of all the SICMs is that certain mineral surfaces can form complexes with dissolved species and these complexes lower the concentration of dissolved components in solution. There are various SICMs that mainly differ in how the surface charge and surface potential are estimated.

The particular version used in these models was based upon work presented in Dzombak and Morel (1990). For many years variations of this model (usually due to updates of some of the complexation reactions) have served as an industry standard for surface complexation modeling. For the HFO surface the dominant complexes are defined as the weak surface site, identified as Hfo_wOH.

Hfo_wOH = Hfo_wOH
log_k 0.0

The above reaction represents the formation or presence in the model of an uncharged surface species. The log K value of zero equals 1 and the above equation represents an identity. This is the surface component upon which all other weak surface complexes are based. The surface sites can react with protons and under low pH conditions the surface will become positively charged.

Hfo_wOH + H^+ = Hfo_wOH_2^+
log_k 7.29 # = pKa1,int

The surface can also release protons in response to high pH conditions.

Hfo_wOH = Hfo_wO^- + H^+
log_k -8.93 # = -pKa2,int

In the diffuse layer model, all the surface charge related reactions occur in the same surface plane.

There is only one reaction for surface complexation with hexavalent chromium[1]:

---

[1] A note about the naming conventions of dissolved species is needed. Before computer databases were developed most chemistry texts and papers used superscripts and subscripts in writing formulas. This avoided any ambiguities about the valence of the species. For example, CrO_4^{2-} clearly has a valence of minus 2. However, the databases of thermodynamic

$Hfo\_wOH + CrO_4^{-2} + H^+ = Hfo\_wCrO_4^- + H_2O$
log_k 10.85

Surface complexation of anions decreases with increasing pH.

There is also only a single surface complexation reaction for Cr(3):

$Hfo\_sOH + Cr^{+3} + H_2O = Hfo\_sOCrOH^+ + 2H^+$
log_k 2.06

This reaction occurs only with strong surface sites (Hfo_sOH). These sites are at much lower concentrations on the HFO surface but they form stronger (or more stable) complexes than the weak sites. For similar concentrations and pH values chromate forms fewer surface complexes, one may also say that the complexes with chromate are less strongly bound to the surface than are the Cr(3) surface complexes.

Cations can also form surface complexes with the HFO weak sites, as well as a cation specific site called a strong site (Hfo_sOH). Using lead as an example we have:

Hfo_sOH + Pb+2 = Hfo_sOPb+ + H+
log_k 4.65

Hfo_wOH + Pb+2 = Hfo_wOPb+ + H+
log_k 0.3

Strong sites (Hfo_sOH) were added by Dzombak and Morel to better fit cation surface complexation particularly under low pH conditions. Dzombak and Morel (1990) set the weak site density based upon 0.2 moles of sites per mole of HFO precipitated. The strong site density was much lower and was based upon a value of 0.005 moles of strong sites per mole of HFO precipitated. Because of the small amount of strong sites it is difficult to identify their role in simple potentiometric titrations. Consequently, the strong sites have the same amphoteric properties as the weak sites i.e., they have the same 1 pKa1,int and pKa2,int values as the weak sites.

---

reactions in PHREEQC do not allow for the use of superscripts or subscripts and so they will place the sign of the valence before the numeric value. Thus chromate becomes CrO4-2, (no superscripts or subscripts), it is not defined as CrO42- because that could suggest that there are 42 oxygen atoms in the formula and that the valence would be minus one. Clearly this would be an obvious error that could be readily resolved, but in some cases, particularly with more complicated formulas the potential for errors in the interpretation of the formula could arise. I prefer this method because it is unambiguous. However I bring this up because the figures use the older method. The program used to generate the Eh-pH diagrams and speciation plots is called PhreePlot and it uses PHREEQC to calculate the chemical conditions. It therefore uses the various databases associated with PHREEQ, which use the +/- sign before the number. The authors of PhreePlot (Kinniburgh and Cooper, 2011) have used the older convention with the superscript and subscripts to name species on the figures.

Hfo_sOH = Hfo_sOH
log_k 0.0

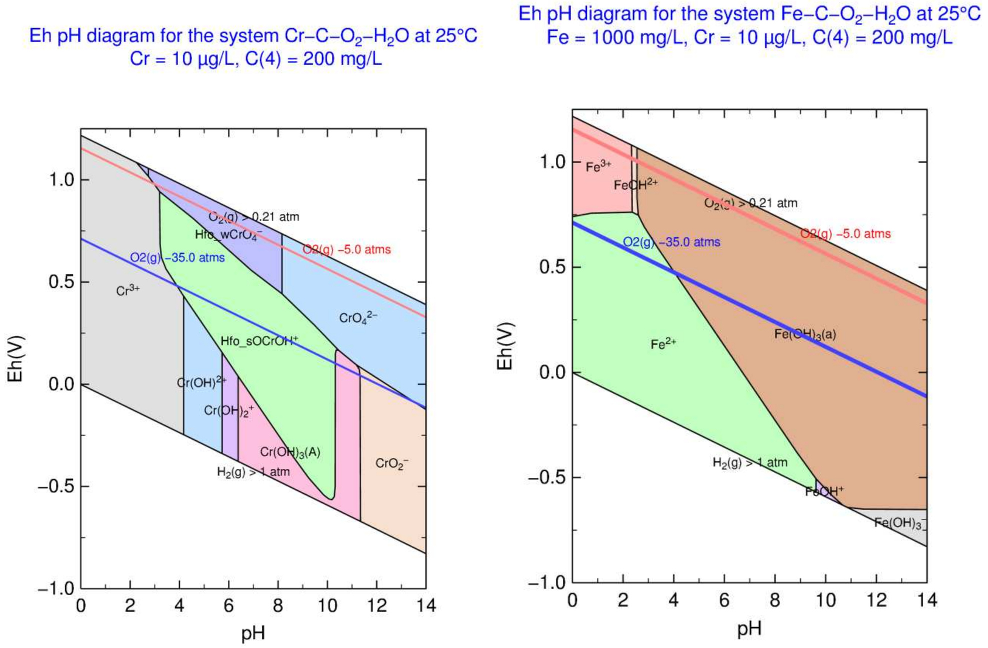
Hfo_sOH + H^+ = Hfo_sOH$_2^+$
log_k 7.29 # = pKa1,int

Hfo_sOH = Hfo_sO$^-$ + H^+
log_k -8.93 # = -pKa2,int

The strong site complexation reactions form stronger complexes with the cations. Numerically these are represented as a greater proportion of surface complexes on these strong sites than on the comparable amount of weak sites. In some cases, strong site metal complexes can nearly equal the weak site concentrations for that metal even though there make up only 2.5 percent of the total sites.

The left hand side image on Figure 2 shows the distribution of the two possible chromium surface complexes. The RHS figure shows the distribution of the HFO mineral, which is identified as $Fe(OH)_3(a)$ on the diagram. The two lines (red and blue) represent the locations of the speciation plots shown on Figures 3 and 4. The upper line (red) represents oxidizing conditions with a partial pressure of $10^{-5.0}$ atmospheres of oxygen. This pressure was selected to best show the relationships with hexavalent chromium (Figure 3). The Cr(6) surface complexation species is the dominant form of hexavalent chromium from a pH of about 3.0 to 8.0 (magenta line). The figure also shows the presence at a much lower concentration of the Cr(3) surface complex and the dissolved Cr(6) concentration as represented by the CrO_4^{2-} line. One can see the increase in dissolved Cr(6) concentration as the pH increases from about 6.5 to 8.

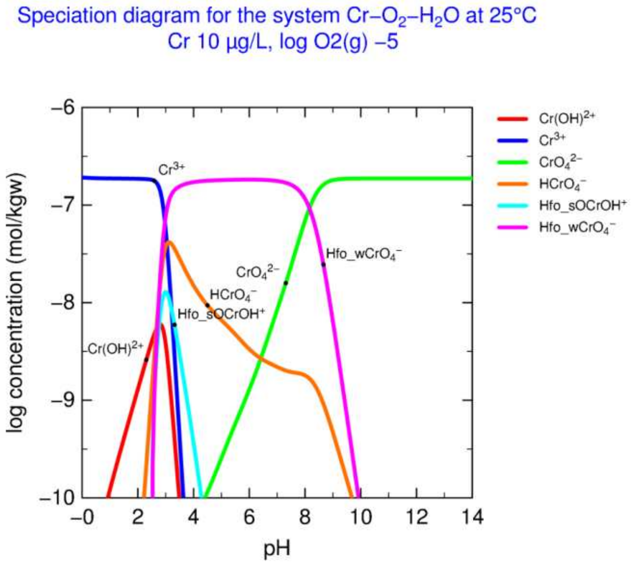
Figure 2. Eh –pH diagram for the system Cr-Fe-C-O-H_2O at 25°C. Surface complexation reactions are included in the diagram. Left hand side shows chromium, RHS shows iron. Prepared using PhreePlot (Kinniburgh and Cooper 2011).



Eh pH diagram for the system Cr–C–O_2–H_2O at 25°C
Cr = 10 µg/L, C(4) = 200 mg/L

Eh pH diagram for the system Fe–C–O_2–H_2O at 25°C
Fe = 1000 mg/L, Cr = 10 µg/L, C(4) = 200 mg/L

Figure 3. Speciation diagram for the system Cr-O-H_2O including HFO surface complexes. Calculation performed at a partial pressure of oxygen at $10^{-5.0}$ atmospheres. Prepared using PhreePlot (Kinniburgh and Cooper 2011).



Speciation diagram for the system Cr–O_2–H_2O at 25°C
Cr 10 µg/L, log O2(g) −5

Figure 4. Speciation diagram for the system Cr-O-H_2O with HFO surface complexes. Calculation performed at a partial pressure of oxygen at $10^{-35.0}$ atmospheres. Prepared using PhreePlot (Kinniburgh and Cooper 2011).

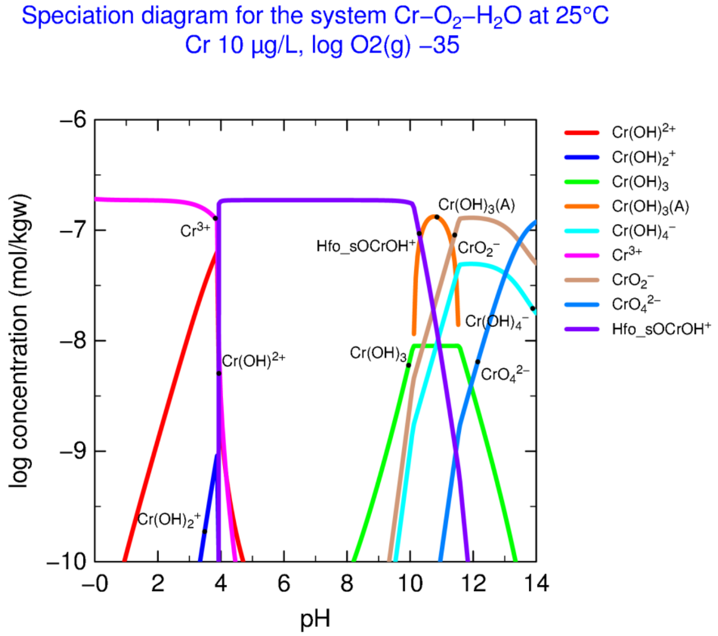


Figure 4 shows species distributions at a lower Eh value, where Cr(3) is dominant. Even though there are far fewer strong sites on the HFO surface from a pH of about 4.0 to about 9.0 essentially all of the chromium is associated with the Hfo_sOH sites. With a further increase in pH, the Cr(OH)$_3$(A) phase appears and it remains as the dominant chromium source to a pH of about 11. The reaction that defines the Cr(OH)3(A) stability is:

Cr(OH)3(A)
Cr(OH)3 + H+ = Cr(OH)2+ + H2O
log_k -0.7500

Figure 3 shows that for this amount of HFO that the dimensionless distribution coefficient (Kd) at a pH of about 8.0 for hexavalent chromium is essentially 1.0. This is the intersection of the CrO_4^{2-} line with the Hfo_wCrO$_4^-$ line. At that pH there are equal molal amount of the two complexes. In Figure 4 the dimensionless Kd at a pH of 8.0 is nearly 2500 [compared using Hfo_sOCrOH+ surface complex and the Cr(OH)$_3$ dissolved complex]. This means that at a pH of 8.0, the HFO surface has a far greater potential to retain Cr(3) than Cr(6). It is this behavior that explains the results from the HH extractions and the Dose 1 and Dose 2 leachate tests.

LABORATORY DATA

Table 1 summarizes the hydroxylamine-HCl extraction results for iron and chromium. Table 2 provides the Dose 1 and Dose 2 contact test results for total chromium, Cr(6), arsenic and molybdenum. The samples in Table 1 can be tracked to corresponding tests in Table 2. The iron concentrations in Table 2 represent the amount of amorphous ferric hydroxide present in the samples. Trace metal concentrations are believed to represent the concentrations of element previously sorbed onto the HFO surface although it may also represent amounts sequestered in a solid solution within the precipitated ferric hydroxide. Table 1 also includes surface site concentration data that is used in the PHREEQC models. The samples collected in June 2017 from the Morgan Park Area are well within the ranges noted for the samples collected previously. No changes to the overall conclusions are required based upon these newer samples.

For the parameters used in subsequent models these extractions for all of the samples are sufficiently similar that subsequent model estimates would produce the same conclusions.

Table 1. Summary of Hydroxylamine – HCl extraction tests. The table also includes calculations for initial HFO surface site concentrations. The site concentrations (Hfo_wOH and Hfo_sOH) and Mass HFO values are referenced to 1 liter of solution and are used in the subsequent transport modeling calculations.

Sample Location	Sample Depth (fbgs)[1]	Iron HH Extractable Conc. mg/Kg	Mass of Rock in Contact with 1.0 L (Kg)	Moles Ferrihydrite (HFO)	Hfo_wOH @ 0.2/mol HFO	Hfo_sOH @ 0.005/mol HFO	Mass HFO (g/L)	Cr (mg/Kg)
Core 1	15	22000	0.20	0.079	0.016	0.00040	7.06	33
	25	25000	0.20	0.090	0.018	0.00045	8.02	41
	30	27000	0.20	0.097	0.019	0.00049	8.66	39
Core 2	10	24000	0.20	0.087	0.017	0.00043	7.70	35
	25	25000	0.20	0.090	0.018	0.00045	8.02	43
	35	21000	0.20	0.076	0.015	0.00038	6.74	38
Core 3	10	17000	0.20	0.061	0.012	0.00031	5.45	24
	15	21000	0.20	0.076	0.015	0.00038	6.74	37
Core 4	17	20000	0.20	0.072	0.014	0.00036	6.42	30
	23	19000	0.20	0.068	0.014	0.00034	6.10	38
	50	19000	0.20	0.068	0.014	0.00034	6.10	31
	65	19000	0.20	0.068	0.014	0.00034	6.10	28
	85	21000	0.20	0.076	0.015	0.00038	6.74	31
	95	21000	0.20	0.076	0.015	0.00038	6.74	34
	110	21000	0.20	0.076	0.015	0.00038	6.74	57
	125	21000	0.20	0.076	0.015	0.00038	6.74	31
	155	19000	0.20	0.068	0.014	0.00034	6.10	38
Core 5	9	23000	0.20	0.083	0.017	0.00041	7.38	32
	25	20000	0.20	0.072	0.014	0.00036	6.42	29
	50	19000	0.20	0.068	0.014	0.00034	6.10	25
	65	19000	0.20	0.068	0.014	0.00034	6.10	29
	80	19000	0.20	0.068	0.014	0.00034	6.10	32
	100	19000	0.20	0.068	0.014	0.00034	6.10	27
	125	19000	0.20	0.068	0.014	0.00034	6.10	28
	140	22000	0.20	0.079	0.016	0.00040	7.06	37
	160	24000	0.20	0.087	0.017	0.00043	7.70	41
Morgan Park Samples	131	21000	0.20	0.076	0.015	0.00038	6.74	33
	195	23000	0.20	0.083	0.017	0.00041	7.38	30
	283	21000	0.20	0.087	0.017	0.00043	7.70	52

[1] fbgs = feet below ground surface

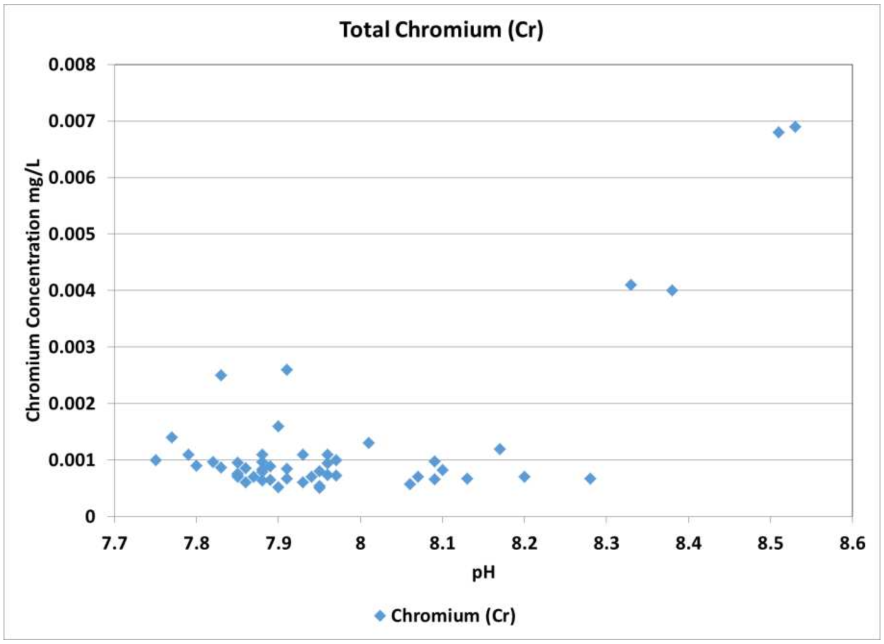
Table 2. Summary of Dose 1 and Dose 2 Leachate Tests. Concentrations in mg/L.

Sample location	Depth fbgs	Dose	Chromium (Cr)	Cr(6)	pH	Arsenic As	Molybdenum Mo
Core 1	15	Dose 1	0.0041	0.0038	8.33	0.0013	0.0073
		Dose 2	0.004	0.0037	8.38	0.0012	0.0071
	20	Dose 1	0.00066	0.00037	8.09	ND	0.0097
		Dose 2	0.00067	0.00038	8.13	ND	0.0097
	30	Dose 1	0.0007	0.00039	8.2	0.0012	0.0081
		Dose 2	0.00067	0.00039	8.28	0.0013	0.0089
Core 2	10	Dose 1	0.0069	0.0066	8.53	0.0017	0.0088
		Dose 2	0.0068	0.0068	8.51	0.0017	0.0087
	25	Dose 1	0.00082	0.00055	8.1	0.00052	0.0058
		Dose 2	0.00079	0.00039	7.88	0.00053	0.0056
	35	Dose 1	0.00098	0.00072	8.09	0.00098	0.01
		Dose 2	0.0012	0.00087	8.17	0.00098	0.011
Core 3	10	Dose 1	0.001	0.00073	7.97	0.00055	0.0033
		Dose 2	0.0013	0.00096	8.01	ND	0.0035
	15	Dose 1	0.00097	0.00067	7.82	ND	0.0024
		Dose 2	0.0011	0.00077	7.96	0.00059	0.0027
Core 4	17	Dose 1	0.00071	0.00047	7.87	0.0006	0.0027
		Dose 2	0.00065	0.00039	7.89	0.00058	0.0032
	23	Dose 1	0.0007	0.0004	7.85	ND	0.008
		Dose 2	0.00074	0.0004	7.96	ND	0.0068
	50	Dose 1	0.00087	0.0006	7.83	ND	0.0071
		Dose 2	0.00097	0.00076	7.88	ND	0.01
	65	Dose 1	0.00061	0.00034	7.86	0.00054	0.017
		Dose 2	0.00074	0.00041	7.96	ND	0.013
	85	Dose 1	0.00064	0.00035	7.88	ND	0.014
		Dose 2	0.00067	0.00041	7.91	ND	0.013
	95	Dose 1	0.0014	0.0011	7.77	ND	0.0042
		Dose 2	0.0011	0.00083	7.88	ND	0.0043
	110	Dose 1	0.00086	0.00057	7.86	ND	0.0093
		Dose 2	0.0016	0.0013	7.9	ND	0.0068
	125	Dose 1	0.001	0.00069	7.75	ND	0.012
		Dose 2	0.0011	0.00081	7.93	ND	0.013
	155	Dose 1	0.00096	0.00062	7.85	ND	0.0062
		Dose 2	0.00085	0.00066	7.91	ND	0.0041
Core 5	9	Dose 1	0.00076	0.00043	7.85	0.00066	0.005
		Dose 2	0.00054	0.00031	7.95	0.00071	0.0046
	25	Dose 1	0.00073	0.00039	7.85	0.00051	0.01
		Dose 2	0.0008	0.0005	7.95	0.00054	0.012
	50	Dose 1	0.0025	0.0022	7.83	ND	0.0028
		Dose 2	0.0026	0.0022	7.91	ND	0.0028
	65	Dose 1	0.00094	0.00066	7.96	0.00059	0.0084
		Dose 2	0.00071	0.00038	7.94	0.00064	0.0096
	80	Dose 1	0.0011	0.00067	7.79	ND	0.0042
		Dose 2	0.00089	0.00063	7.89	ND	0.0051
	100	Dose 1	0.0009	0.00056	7.8	ND	0.0023
		Dose 2	0.00084	0.00055	7.88	ND	0.0021
	125	Dose 1	0.00073	0.00039	7.97	ND	0.0054
		Dose 2	0.00057	0.00033	8.06	ND	0.0071
	140	Dose 1	0.00052	0.00027	7.9	0.00066	0.016
		Dose 2	0.00051	0.00023	7.95	0.00074	0.019
	160	Dose 1	0.00061	0.00033	7.93	0.00062	0.015
		Dose 2	0.00071	0.00041	8.07	0.00062	0.012
Morgan Park	131	Dose 1	0.0007	0.00053	7.98	ND	0.0053
		Dose 2	0.00062	0.00057	8.11	ND	0.0054
	195	Dose 1	0.0011	0.002	7.94	ND	0.0036
		Dose 2	0.0012	0.0012	7.96	ND	0.0034
	283	Dose 1	0.00068	0.00063	8.1	ND	0.0066
		Dose 2	0.00058	0.00054	8.06	ND	0.0075

Review of Chromium Data

The Dose 1 and Dose 2 results were examined and some observations were noted. Chromium concentrations are generally less than 0.003 mg/L for all samples with pH values less than 8.3, concentrations increase at higher pH values (Figure 5). The six added Morgan Park Samples plot in the lower pH and lower concentration group in the figure[2].

Figure 5. Distribution of total chromium concentrations as a function of pH for the Dose 1 and Dose 2 leachates.



The proportion of Cr(6) also appears to increase with increasing pH (Figure 6), and for the highest pH values nearly all the chromium is Cr(6) (Figure 7). The Morgan Park Samples have a tendency to show a greater proportion of Cr(6) than in the earlier samples. These samples used a slightly different formulation for the Dose 1 and Dose 2 solutions, it is possible that this is responsible for the difference but all the Morgan Park leachate samples showed total Cr concentrations that were in the among the lower concentrations.

---

[2] For the Morgan Park Samples some attempted adjustments to the Dose 1 and Dose 2 formulations were made by lowering the pH but the effect on the chromium concentrations appear to be minimal.

Figure 6. Distribution of chromium (6) concentrations as a function of pH for the Dose 1 and Dose 2 leachates.

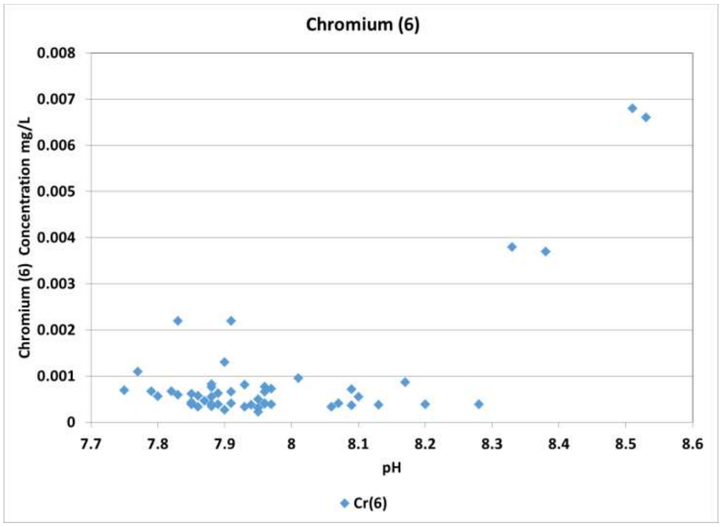
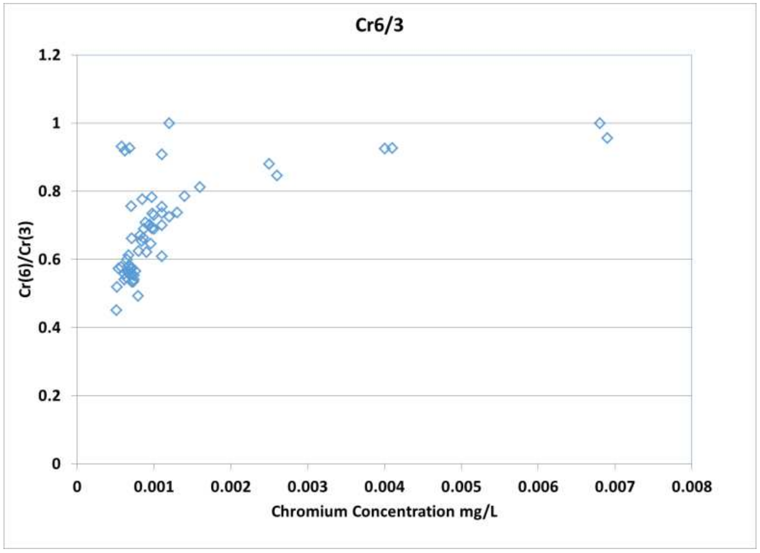


Figure 7. Ratio of Cr(6) to Cr(3) in the Dose 1 and Dose 2 Leachates.



To some extent, this behavior is expected and is consistent with Figures 3 and 4. Hexavalent chromium becomes more mobile with increasing pH. As explained below, the current data cannot be used to provide a definitive explanation about the origin of the hexavalent chromium. The HH leachate tests indicated that some manganese was present in these samples and manganese oxides are known to oxidize Cr(3) to Cr(6). But given the small concentration of chromium in the leachate tests and for reasons described below the evidence suggests that most the chromium is present as Cr(3) in the sediments. Some oxidation may have taken place because the Dose 1 and Dose 2 solutions contain dissolved oxygen and the some late time oxidation may have occurred, but at this time a definitive conclusion cannot be provided. It is suggested that ground water samples in saturated alluvial sediments (corresponding to the same stratigraphic conditions as the sonic samples but in saturation locations) be collected and analyzed for total and hexavalent chromium to provide a better understanding of the nature and source of the Cr(6) in these leachates.

DEFINITION OF SOURCE TERM CONCENTRATIONS

A PHREEQC model was developed to evaluate the nature of the chromium recovered in the HH extraction tests. The model used the results from the Core 1 15 feet below ground surface (fbgs) sample to determine the concentration of the surface sites and to identify the dominant source of chromium in the extracted solution. As shown in Table 1 the model started with an extractable Fe concentration of 22,000 mg/kg of solid. The Dose 1 and Dose 2 tests used a solution to solid ratio of 5:1. PHREEQC usually assumes a 1 liter volume of solution and so the model assumed 200 grams (0.2 Kg) of solid. The solution composition represented the Dose 1 concentrations for the Core 1 sample at 15 fbgs. The sample had a concentration of 0.0041 mg/L total chromium, and the Cr(6) concentration was 0.0038 mg/L, the pH was 8.33 and this sample had the fourth highest pH among the Dose 1 and Dose 2 leachate test samples. The HH extraction uses a reducing agent to dissolve the amorphous oxidized form of iron in the sample. It is expected that this process will also reduce any Cr(6) to Cr(3) and so specific measurements of Cr(6) in these samples for this extraction cannot be taken.

The Core 1 15 fbgs sample was selected for the modeling because it contained the average chromium concentration for the HH extracts at about 33 mg/L and it had a total iron concentration at 22,000 mg/Kg that is just over the average 21,000 mg/L. However, the primary reason in selecting the sample was that the chromium concentrations in the Dose 1 and Dose 2 leachates were some of the higher values, these samples also had somewhat elevated pH values. The sample with the highest chromium values was Core 2 Sample 10 fbgs, which also had the highest pH values. It was felt that the Core 1 sample better represented conditions, while still maintaining a model that would tend to slightly overestimate average concentrations and produce a more conservative estimate of concentrations.

We can use a capability in PHREEQC to estimate the composition of trace metals on the HFO surface. PHREEQC can equilibrate a solution composition with a surface. This option retains the solution composition and adds mass to the model in terms of surface complexed species to attain equilibrium between the solution composition and the surface. In the first model it was assumed that hexavalent chromium was stable and on the surface. The water composition contained 8.78 mg/L of dissolved oxygen and so the chromium that formed surface complexation species on the HFO was dominantly Cr(6). The estimated amount present on the surface was 2.27e-9 moles of chromium which equals only 1.184e-4 mg of chromium in the 200 grams of solid used in the leachate test. This would correspond to 5.9e-4 mg/Kg of Cr(6) in the extractable sample. The pattern is consistent with Figure 3 that shows that at a pH of about 8.33 the dissolved Cr(6) as CrO_4^{2-} is about an order of magnitude greater than the surface complexed $Hfo\_wCrO_4^-$. However, the concentration is far lower than the measured 33 mg/Kg present in the HH extraction proving that hexavalent chromium is not the dominant source of chromium in the HH extract.

The same calculation was also performed assuming that the chromium was dominantly Cr(3). In that case, the model explicitly defined the chromium in solution as Cr(3) and the partial pressure of oxygen gas was fixed at 10^{-35} atmospheres (same as in Figure 4). In that calculation the amount of Cr(3) estimated to be complexed on the surface of the HFO was estimated to be 19.86 mg or 99.3 mg/Kg. This is about three times greater than the amount of extractable chromium reported in the Core 1 15 fbgs sample and it suggests that the HH extraction over-estimated the effective amount of HFO sorbent in the sample. Over estimation of the amount of HFO sorbent is common when the HH extraction method is used and in many cases the concentration may be reduced to 10 percent of the extracted concentration. Another simulation was prepared that assumed the effective HFO sorbent to be 0.33 times the measured concentration and that model matched the measured 33 mg/Kg of chromium.

Figure 4 also supports the relationship between a large amount of surface complexed chromium and a small concentration of chromium in solution. The low concentrations of total chromium in the Dose 1 and Dose 2 leachates are consistent with a mainly Cr(3) source. The fact that the at least half to over 90 percent of this chromium is Cr(6) may be related to subsequent exposure to oxygen during the leaching test or due to the presence of manganese oxides which are known to oxidize Cr(3) to Cr(6).

The final model based upon 0.33 of the HH extractable iron concentration provides a source term for the subsequent transport models. This surface was saved and used in the transport models described below.

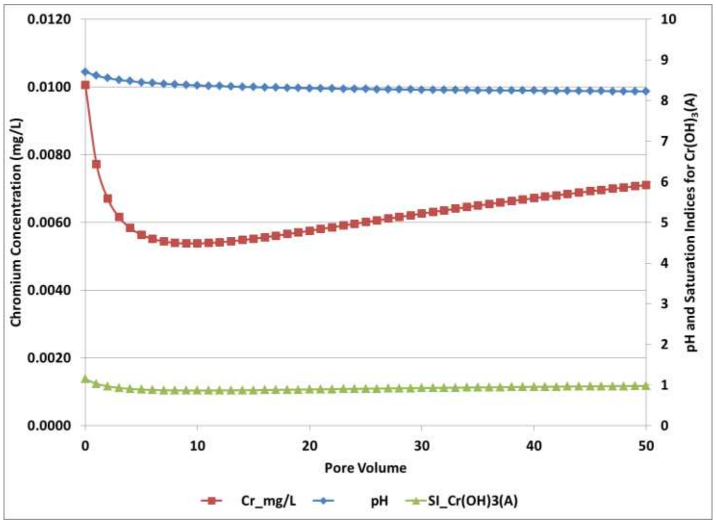
TRANSPORT MODELS

The HFO surface composition developed in the earlier model was used in a series of simple transport models to evaluate the long term leach potential of the aquifer storage material. The transport model was a continuation of the earlier described PHREEQC model (same input file). The water to solid proportion was scaled down to represent the 200 gram sample used in the initial calculations. Water compositions from Table 3 of the Raw Water Prescreen Testing report prepared by McCampbell Analytical, Inc. were used to define the inflowing (Solution 0) compositions. For these calculations it was assumed that the solids had a porosity of 30%[3]. Figure 8 shows chromium concentrations as a function of pore volume. The pH and saturation index for $Cr(OH)_3(A)$ are also included on the figure. The solution is consistently oversaturated with respect to $Cr(OH)_3(A)$, which means there is a reasonable expectation that the actual chromium concentrations could be lower than calculated by the model. Any further modeling involving the precipitation of $Cr(OH)_3(A)$, particularly since it would produce even lower chromium concentrations was not warranted.

---

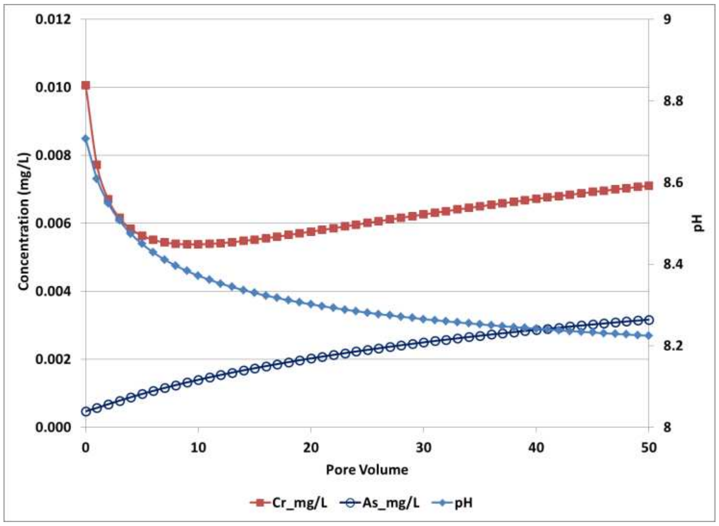
[3] Starting with the 200 grams of solid and assuming a specific gravity of 2.65 for the minerals that make up the sample resulted in a volume of 75.5 cm^3, this volume only represents the minerals, without pore space. With a porosity of 30% the volume bulk volume is 98.15 cm^3, and the volume of water was estimated to be 0.0226 liters. That amount of water was used to define the amount of solution in each shift. The surface retains the trace metal surface complex composition and adjusts the solution volume for the subsequent calculation.

Figure 8. Concentrations of Cr, pH and saturation indices for $Cr(OH)_3(A)$ as a function of pore volume for the Core 1 15fbgs Dose 1 transport model. This version assumed a partial pressure of CO2(g) of $10^{-3.4}$ atmospheres.



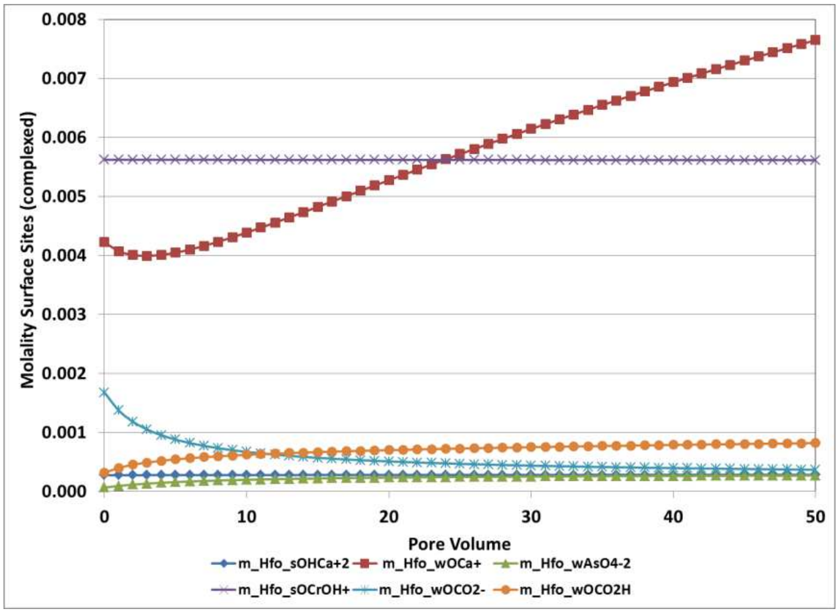
Other elements can be examined and the following figure (Figure 9) shows concentrations for arsenic and chromium.

Figure 9. The pH and concentrations of chromium and arsenic as a function of pore volume for the Core 1 15fbgs Dose 1 transport model.



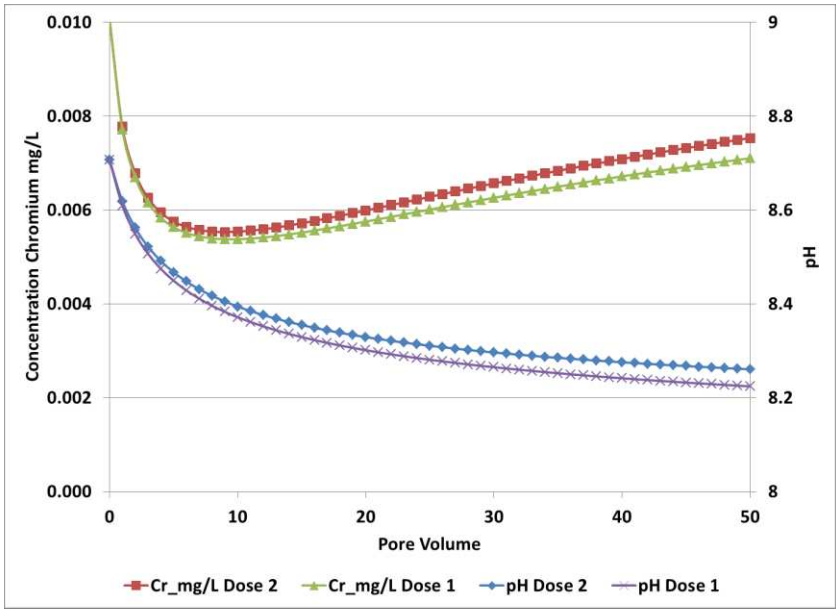
The slight increases in trace metal concentrations are believed to be related to additional increments of calcium and carbonate species and their corresponding surface complexes (Figure 10).

Figure 10. Surface site concentrations as a function of pore volume for the Core 1 15fbgs Dose 1 transport model.



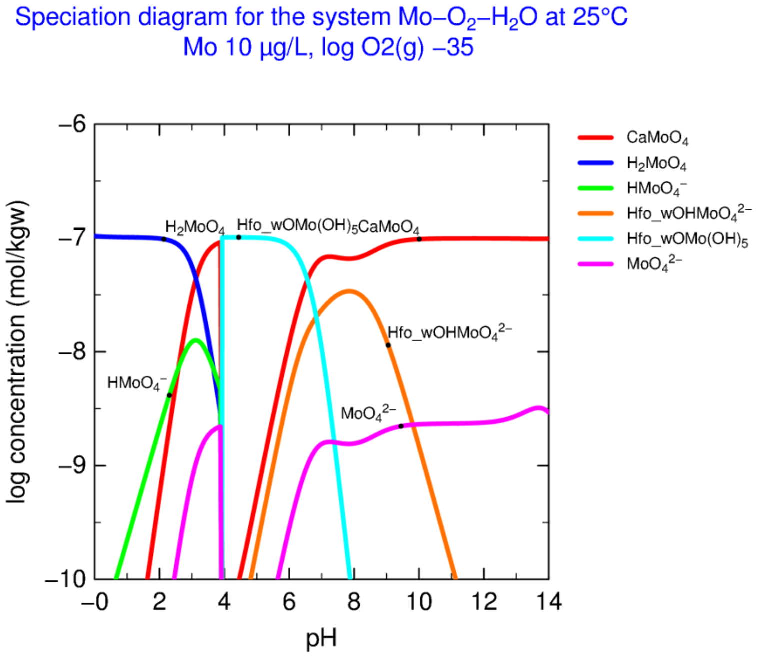
The model results described above all used the Dose 1 composition as the introduced leaching solution. Figure 11 compares the chromium concentrations for the Dose 1 solution to the Dose 2 solution. A slightly greater concentration of chromium is noted in Dose 2. The Dose 2 solution had greater pH of 8.7 versus 8.5 in Dose 1 and a slightly greater alkalinity of about 40.4 mg/L as $CaCO_3$ versus 33 mg/L as $CaCO_3$ in the Dose 1 starting composition.

Figure 11. Comparison between the Dose 1 and Dose 2 solution transport model results for Cr concentrations and pH as a function of pore volume for the Core 1 15fbgs transport models.



Molybdenum was also included in these models, but it tended to show very rapid decreases in the pore water concentrations. This is because at the pH selected for the equilibration with the Dose 1 solution very little molybdenum would be complexed on the surface. Like hexavalent chromium, molybdenum is an oxyanion and it is nominally as a molybdate (MoO_4^{-2}) species under these conditions. Therefore, lower pH conditions favor formation of Mo bearing surface complexes. At a pH of approximately 8.0 there is very little Mo on the HFO surface (Figure 12), the concentration of the $Hfo\_wOMoO_4^{2-}$ complex is about $10^{-7.5}$ molal. Although the HFO to trace metal ratio in Figure 12 is less than estimated in the PHREEQC model the pattern is easily seen as the amount of surface complexed Mo is low and the Kd is less than 1.0. At this time a definitive answer about the source of the molybdenum cannot be made based upon this data but the alluvial sediments are derived from igneous sources and those rocks are the ultimate source. Therefore, it is likely that molybdenum is leaching from other minerals in the alluvium and it is not present as a surface complex.

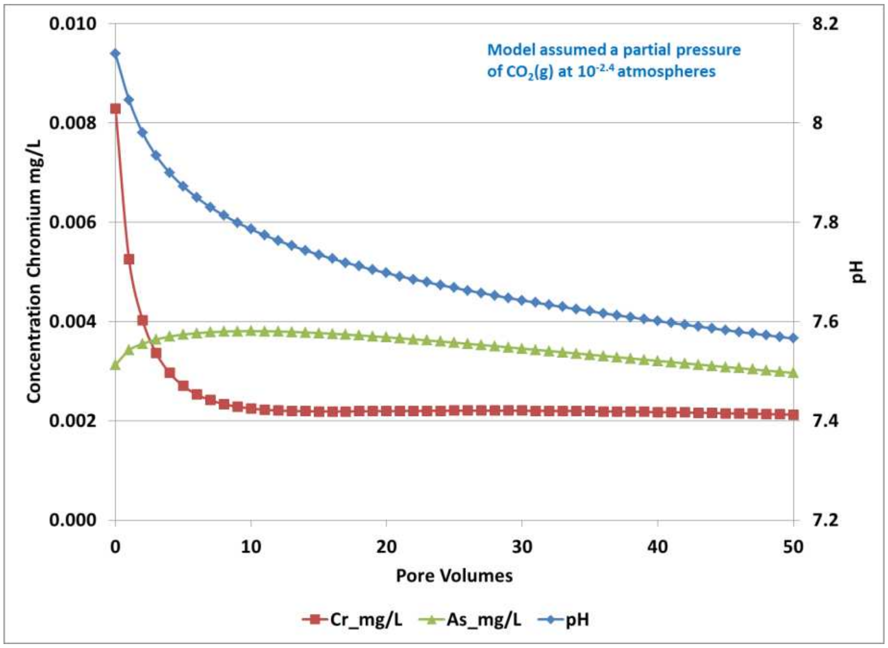
Figure 12. Speciation diagram for Mo with HFO surface complexes.



Ambient conditions within the recharge zone will exert a stronger influence on concentrations than will the differences in pH and alkalinity the pretreated (Dose 1 and Dose 2) solutions. Figure 13 shows the pH, and chromium and arsenic concentrations assuming that biological activity (respiration) has increased the partial pressure of carbon dioxide gas to $10^{-2.4}$ atmospheres. Such a condition lowers the pH and at first glance a lower pH should support greater surface complexation of oxyanions such as arsenate and chromate. But the increased partial pressure of CO_2(g) leads to the formation of more carbonate surface complexes that occupy the HFO surface (Appelo et al. 2002). These complexes can reduce oxyanions sorption in two ways first by taking up sites that would be taken up by the trace metals. The other process is the formation of the Hfo_wOCO_2^- site. This will produce a more negative surface charge which will enhance repulsion of the oxyanions. The more negative surface charge would favor Cr(3) surface complexation.

But in the case of Cr(3) the lowered pH values also lowers the stability of the $Cr(OH)_3$ species (Figure 4), which lowers the total dissolved chromium in solution. Saturation indices for $Cr(OH)_3$(A) have decreased but are still positive, with values of around 0.516 at PV 5 and decreasing to 0.346 at PV 50. The arsenic concentrations start at a slightly higher initial concentration and decrease over time.

Figure 13. The pH and concentrations of chromium and arsenic as a function of pore volume for the Core 1 15 fbgs Dose 1 transport model. This version assumed a partial pressure of $CO_2(g)$ of $10^{-2.4}$ atmospheres.



Ground Water Chemistry

Five samples of groundwater were collected during the second round of sampling. A summary of the results is included in Table 3. Piper and Stiff diagrams were prepared based upon these results and the diagrams and figures are presented in the main body of this report.

Table 3. Summary of Morgan Park ground water samples - inorganic parameters.

ANALYTE	METHOD	DL	RL	UNITS	LGRS-01: Sonic Shallow	LGRS-02: Sonic Deep	LGRS-03: Rotary Shallow	LGRS-04: Rotary Medium	LGRS-05: Rotary Deep
MAJOR IONS									
Bicarbonate	SM2320B	1	5	mg/L	150	150	120	190	180
Calcium	EPA 200.7	0.2	1	mg/L	27	37	45	53	56
Chloride	EPA 300.0	0.1	0.5	mg/L	15	60	87	48	35
Magnesium	EPA 200.7	0.03	1	mg/L	13	16	18	21	20
Potassium	EPA 200.7	0.04	1	mg/L	1.9	1.5	1.1	0.98	1.4
Sodium	EPA 200.7	0.02	1	mg/L	35	46	32	18	18
Sulfate as SO4	EPA 300.0	1	2.5	mg/L	48	47	36	41	44
ANIONS									
Fluoride	EPA 300.0	0.07	0.1	mg/L	0.11	0.11	0.11	0.11	0.11
Nitrate + Nitrite as N	Calculation	0.0086	0.4	mg/L	0.37	0.4	0.5	1.9	1.8
Nitrate as N	EPA 300.0	0.04	0.4	mg/L	0.37	0.4	0.5	1.9	1.8
Nitrite as N	EPA 300.0	0.05	0.4	mg/L	ND	ND	ND	ND	ND
Perchlorate	EPA 314.0	0.9	4	ug/L	ND	ND	ND	ND	ND
ALKALINITY									
Carbonate	SM2320B	1	5	mg/L	ND	ND	ND	ND	ND
Hydroxide	SM2320B	1	5	mg/L	ND	ND	ND	ND	ND
Total Alkalinity as CaCO3	SM2320B	1	5	mg/L	120	120	95	160	140
METALS									
Aluminum	EPA 200.8	8	50	ug/L	1200	810	41	22	11
Antimony	EPA 200.8	0.08	6	ug/L	0.11	ND	0.13	0.087	1.7
Arsenic	EPA 200.8	0.8	2	ug/L	0.94	1.2	ND	ND	1
Barium	EPA 200.8	0.2	100	ug/L	49	50	64	61	62
Beryllium	EPA 200.8	0.08	1	ug/L	ND	ND	ND	ND	ND
Cadmium	EPA 200.8	0.2	1	ug/L	ND	ND	ND	ND	ND
Chromium	EPA 200.8	0.32	10	ug/L	2.9	2.3	2.5	2.4	15
Chromium, hexavalent	EPA 218.6	0.05	1	ug/L	ND	0.33	0.52	0.7	0.99
Copper	EPA 200.8	0.2	50	ug/L	2.7	2.9	0.76	0.4	0.69
Iron	EPA 200.7	20	100	ug/L	1400	870	78	25	120
Lead	EPA 200.8	0.08	5	ug/L	0.29	0.17	ND	ND	ND
Manganese	EPA 200.8	0.2	20	ug/L	70	40	4.3	2.7	7.5
Mercury	EPA 245.1	0.06	1	ug/L	ND	ND	ND	ND	ND
Nickel	EPA 200.8	0.24	10	ug/L	4.6	3.5	0.82	1.5	14
Selenium	EPA 200.8	0.8	5	ug/L	ND	ND	ND	ND	ND
Silver	EPA 200.8	0.2	10	ug/L	ND	ND	ND	ND	ND
Thallium	EPA 200.8	0.2	1	ug/L	ND	ND	ND	ND	ND
Uranium	EPA 200.8	0.08	1	pCi/l	0.095	0.12	0.1	0.27	0.38
Zinc	EPA 200.8	2	50	ug/L	4.8	3	ND	ND	2.3
GENERAL/OTHER									
Cr(6)/TOTAL Cr					<0.017	0.143478	0.208	0.2916667	0.066
Aggressive Index	AWWA		2	NU	11.33	11.55	11.46	11.66	11.86
Color	SM2120B	3	5	CU	15	50	8	6	5
Cyanide (total)	10-204-00-1X	0.002	0.1	mg/L	ND	ND	ND	ND	ND
Hardness, Total	SM2340B	1	5	mg/L	121	158	187	218	220
MBAS, calculated as LAS, mw 340	SM5540C	0.03	0.05	mg/L	ND	ND	ND	ND	ND
Odor	EPA 140.1		1	T.O.N.	ND	ND	ND	ND	ND
pH	SM4500-H+ B	1.68	1.68	pH Units	7.4	7.48	7.43	7.35	7.56
Specific Conductance (EC)	SM2510B	1	20	umhos/cm	390	530	550	560	520
Total Dissolved Solids	SM2540C	5	10	mg/L	230	310	310	330	310
Turbidity	SM2130B	0.05	0.1	NTU	18	36	1.6	0.45	0.08

Selected parameters were used for saturation index calculations using PHREEQC. The parameters used are listed in Table 4.

Table 4. Summary of ground water compositions used in PHREEQC calculations.

Description	Ca	Cl	Mg	K	Na	Sulfate	F	Nitrate as N	Alkalinity	Al	Sb
units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L
LGRS-01:Sonic Shallow	27	15	13	1.9	35	48	0.11	0.37	120	1200	0.11
LGRS-02:Sonic Deep	37	60	16	1.5	46	47	0.11	0.4	120	810	
LGRS-03:Rotary Shallow	45	87	18	1.1	32	36	0.11	0.5	95	41	0.13
LGRS-04:Rotary Medium	53	48	21	0.98	18	41	0.11	1.9	160	22	0.087
LGRS-05:Rotary Deep	56	35	20	1.4	18	44	0.11	1.8	140	11	1.7
Description	**As**	**Ba**	**Cr(3)**	**Cr(6)**	**Cu**	**Fe**	**Pb**	**Mn**	**Zn**	**pH**	**pe**
units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		default
LGRS-01:Sonic Shallow	0.94	49	2.85	0.05	2.7	1400	0.29	70	4.8	7.4	4
LGRS-02:Sonic Deep	1.2	50	1.97	0.33	2.9	870	0.17	40	3	7.48	4
LGRS-03:Rotary Shallow		64	1.98	0.52	0.76	78		4.3		7.43	4
LGRS-04:Rotary Medium		61	1.7	0.7	0.4	25		2.7		7.35	4
LGRS-05:Rotary Deep	1	62	14.01	0.99	0.69	120		7.5	2.3	7.56	4

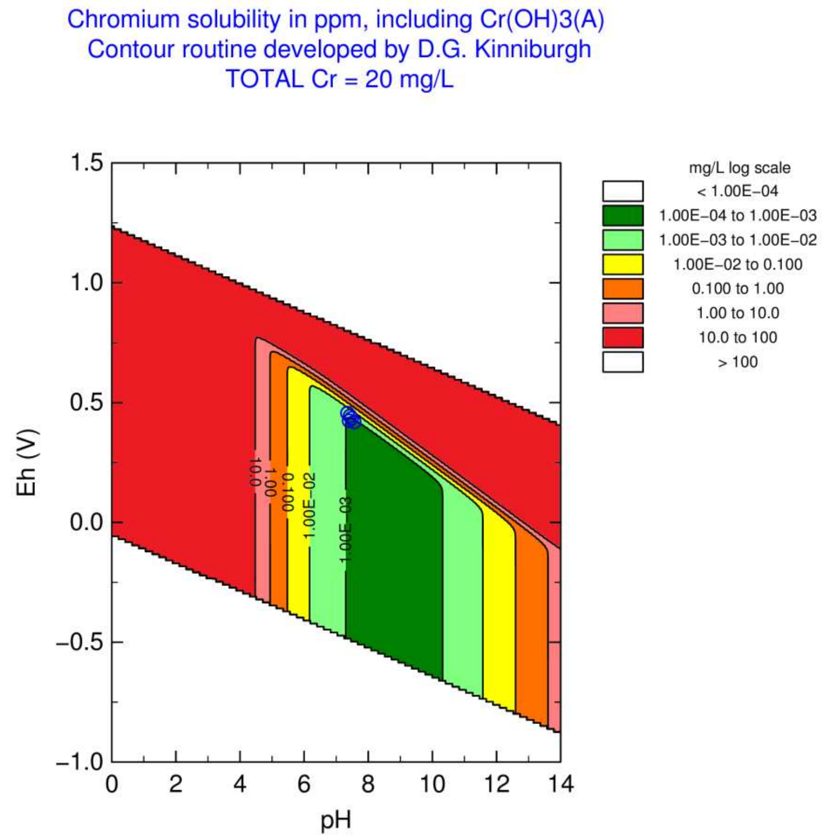
PHREEQC will calculate saturation indices based upon the components used to define the solution. For these waters approximately 200 phases were listed. However, the vast majority of these phases are undersaturated and can be eliminated. Many of the oversaturated phases are also eliminated because they are so far oversaturated that they are not controlling the chemical composition of the waters either. From the list of minerals (phases) we have selected five phases (Table 5). Calcite was included because calcium is added to increase the calcite saturation indices (similar to Langelier Index) to reduce pipe corrosion. Two chromate phases were included, to demonstrate the stability of Cr(3) phases. Ferrihydrite [Fe(OH)3] was included in the table because sorption onto this phase is a common means to control Cr(6). For ferrihydrite the program used the default pe of 4 to calculate the ferrous/ferric speciation. Finally, the partial pressure of carbon dioxide gas [CO2(g)] was included because it is an indicator of possible biological activity.

Table 5. Summary of saturation index calculations for selected phases.

Description		Saturation Indices				
	pH	Calcite	Cr(OH)3(A)	Cr2O3	Ferrihydrite	CO2(g)
LGRS-01: Sonic Shallow	7.40	-0.48	0.42	2.73	2.82	-2.28
LGRS-02: Sonic Deep	7.48	-0.27	0.28	2.46	2.67	-2.35
LGRS-03: Rotary Shallow	7.43	-0.31	0.27	2.43	1.59	-2.38
LGRS-04: Rotary Medium	7.35	-0.10	0.17	2.23	1.01	-2.07
LGRS-05: Rotary Deep	7.56	0.07	1.16	4.21	1.85	-2.34
Cr(OH)3(A) saturation index based upon Cr(3) concentration						

Saturation indices for chromium phases were based upon the calculated Cr(3) concentration. That concentration was calculated by taking the total Cr concentration minus the Cr(6). These two redox states can be entered into PHREEQC which then can calculate the redox condition. It is reported both as the pe and also the Eh for the redox couple Cr(3)/Cr6). These calculated Eh values and the reported sample pH values were used to plot the five samples onto Figure 14. The underlying figure is a contour plot of chromium concentrations assuming Cr(OH)3(A) as the precipitating phase. As expected, and because some lesser concentrations of Cr(6) are reported to be present in these samples the calculated Eh values plot near the top of the Cr(3) stability field. The total Cr concentrations are typically around 1 to 3 ug/L and this is consistent with the contour lines shown on the figure. The agreement between the concentrations and their location on the figure indicates that the dominate form of chromium in these samples is Cr(3) and its concentration is controlled by a phase with the stability of amorphous $Cr(OH)_3$. The Cr_2O_3 phase was consistently oversaturated and it suggests that a phase with less stability such as $Cr(OH)_3$ is most likely controlling Cr concentrations in these waters. The ground water results support the conclusions stated in the earlier version of this memorandum that were based upon the SPLP leachates and HH extractions; mainly that Cr(3) is the dominant form of chromium in these waters.

Figure 14. Concentrations of chromium as a function of Eh and pH. The phase $Cr(OH)_3$(A) is the only possible phase. Total concentration of Cr initially set at 20 mg/L. Concentrations in mg/L. The blue circles represent the Eh pH conditions for the five ground water samples. Prepared using PhreePlot (Kinniburgh and Cooper 2011).



Because carbon dioxide is a gas, its standard state is 1.0 atmosphere. Therefore, the saturation index for carbon dioxide is equivalent to the partial pressure. The pressure is slightly elevated when compared to the atmospheric concentration of CO2(g), which is $10^{-3.4}$ atmospheres. This may suggest possible biological activity active in the sediment; partial pressures in some soils can reach $10^{-2.0}$ atmospheres. At the very least it indicates that these samples are not in equilibrium with atmospheric carbon dioxide.

The proportion of Cr(6) in the ground water samples range from less than 0.017 to 0.29 (Table 3).. The SPLP results (Dose 1 and Does 2 Samples) tend to show proportions greater than 0.4 for all samples. This suggests that there may be a tendency for the SPLP tests to oxidize more chromium to Cr(6). The presence of dissolved oxygen in the Dose 1 and Dose 2 solutions plus the agitation of the samples may cause an artificial increase in Cr(6).

CONCLUSIONS

Based upon a review of the HH extraction results, the Dose 1 and Dose 2 results and PHREEQC based modeling results the following conclusions can be stated:

- Small concentrations of molybdenum and chromium are leached from these sediments.
- Arsenic is also leached from the sediments, but the concentrations are also low and in many cases the values were below detection limits.
- Although some hexavalent chromium was identified in the Dose 1 and Dose 2 leachates, the concentrations are too low to support the premise that most of the chromium in the sediments is in a hexavalent form. Modeling results confirm that that the dominant form of chromium is present as Cr(3). Some subsequent oxidation of this chromium [Cr(3)] may take place during the Dose 1 and 2 tests but at this time a specific reaction mechanism has not been identified.
- The Dose 1and Dose 2 measurements show a relationship with chromium and hexavalent chromium concentrations, particularly as the pH values increase to values greater than 8.3 (Table 2). There appears to be a threshold pH that increases the chromium and Cr(VI) concentrations in these leachates. A threshold pH is consistent with the sorption and desorption of Cr(VI) onto HFO (Figure 3).
- The ability of the (two of twenty six) core samples to maintain these elevated pH values is unknown. But as the Dose 1 and Dose 2 pH values were initially about 8.5 it is likely that pH values in the other samples could increase as recharge operations occur (cycle) and this may release more chromium into solution.
- Based upon the data shown in Table 2 and given the presence of hexavalent chromium in the higher pH samples it is suggested that methods be implemented to start with an initially lower pH for the recharged waters. Maximum pH values should not exceed 8.0 for the recovered water samples. To maintain a sufficiently high Langelier Saturation Index (LSI) at lower pH values prior to infiltration or injection may require higher hardness levels.
- Ground water samples support the dominance of Cr(3) phases. The samples also demonstrate that these samples have slightly elevated partial pressures of CO_2(g) are

present at depth. The model shown in Figure 13 is with a partial pressure of 10-2.4 atmospheres is consistent with these partial pressures. These elevated carbon dioxide gas values suggest that pH buffering may be active and this may produce a lower pH in the formation, which could decrease the mobility of Cr(6).

REFERENCES

Appelo, C. A. J., Van der Weiden, M. J. J., Tournassat, C., Charlet, L., 2002. Surface complexation of ferrous iron and carbonate on ferrihydrite and the mobilization of arsenic. *Environ. Sci. Technol.*, vol. *36*, 3096–3103.

Dzombak, D.A. and Morel, F.M.M. 1990. Surface complexation modeling: hydrous ferric oxide. Wiley-Interscience, New York, 393 p.

Kinniburgh, D. G., and Cooper, D. M., 2011. PhreePlot – Creating graphical output with PHREEQC. Available at http://www.phreeplot.org/, last updated December 24, 2016. 616 p.

Langmuir, D., 1997, Aqueous Environmental Geochemistry. Prentice Hall, Upper Saddle River NJ. 600p.

Parkhurst, D.L., and Appelo, C.A.J., 2013, Description of input and examples for PHREEQC version 3 — A computer program for speciation, batch-reaction, one-dimensional transport, and inverse geochemical calculations: U.S. Geological Survey Techniques and Methods, book 6, chap. A43, 497 p., available only at http://pubs.usgs.gov/tm/06/a43.

Appendix O--Alpha Analytical Reports for Morgan Park Monitoring Wells Water Quality Sampling

Due to size, **Appendices O** and **P** are provided as a separate stand-alone Adobe™ document separate from the remainder of this report.

Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

23 June 2017

Todd Groundwater
Amber Ritchie
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: SCVWD IPR JD Morgan Park
Work Order: 17F0528

Enclosed are the results of analyses for samples received by the laboratory on 06/06/17 21:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For David S. Pingatore
Project Manager

alpha
Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Todd Groundwater	Project Manager:	Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project:	SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number:	[none]	06/23/17 14:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LGRS-01: Sonic Shallow	17F0528-01	Water	06/06/17 10:00	06/06/17 21:00

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

LGRS-01: Sonic Shallow

17F0528-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals (Drinking Water) by EPA 200 Series Methods										
Calcium	**27**	0.20	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	EPA 200.7	
Iron	**1400**	20	100	ug/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	EPA 200.7	
Magnesium	**13**	0.030	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	EPA 200.7	
Mercury	ND	0.060	1.0	ug/L	1	AF73665	06/19/17 11:41	06/20/17 10:35	EPA 245.1	U
Potassium	**1.9**	0.040	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	EPA 200.7	
Sodium	**35**	0.020	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	EPA 200.7	
Metals by EPA 200 Series Methods										
Chromium, hexavalent	ND	0.050	1.0	ug/L	1	AF73222	06/07/17 12:42	06/07/17 15:21	EPA 218.6	U
Metals by EPA Method 200.8 ICP/MS										
Aluminum	**1200**	8.0	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	
Antimony	**0.11**	0.080	6.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Arsenic	**0.94**	0.80	2.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Barium	**49**	0.20	100	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Beryllium	ND	0.080	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	U
Cadmium	ND	0.20	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	U
Chromium	**2.9**	0.32	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Copper	**2.7**	0.20	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Lead	**0.29**	0.080	5.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Manganese	**70**	0.20	20	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	
Nickel	**4.6**	0.24	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Selenium	ND	0.80	5.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	U
Silver	ND	0.20	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	U
Thallium	ND	0.20	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	U
Uranium	**0.095**	0.080	1.0	pCi/l	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J
Zinc	**4.8**	2.0	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:50	EPA 200.8	J

LGRS-01: Sonic Shallow

17F0528-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Conventional Chemistry Parameters by APHA/EPA Methods										
Aggressive Index	**11.33**		2.00	NU	1	AF73315	06/12/17 15:00	06/21/17 13:44	AWWA	
Bicarbonate	**150**	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	
Carbonate	ND	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	U
Color	**15**	3.0	5.0	CU	1	AF73219	06/06/17 18:45	06/06/17 18:45	SM2120B	
Hydroxide	ND	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	U
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L	1	AE74270	06/07/17 09:30	06/07/17 14:15	SM5540C	U
Odor	ND		1.0	T.O.N.	1	AF73219	06/06/17 18:45	06/06/17 18:45	EPA 140.1	U
Perchlorate	ND	0.90	4.0	ug/L	1	AF73377	06/12/17 12:56	06/12/17 12:56	EPA 314.0	U
pH	**7.40**	1.68	1.68	pH Units	1	AF73454	06/07/17 16:00	06/07/17 17:00	SM4500-H+ B	T-14
Specific Conductance (EC)	**390**	1.0	20	umhos/cm	1	AF73454	06/07/17 16:00	06/07/17 17:00	SM2510B	
Total Dissolved Solids	**230**	5.0	10	mg/L	1	AF73441	06/13/17 08:09	06/19/17 11:01	SM2540C	
Turbidity	**18**	0.050	0.10	NTU	1	AF73221	06/06/17 18:30	06/06/17 18:30	SM2130B	
Total Alkalinity as CaCO3	**120**	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	
Nitrate + Nitrite as N	**0.37**	0.0086	0.40	mg/L	1	AF73437	06/12/17 16:51	06/19/17 09:35	Calculation	J
Hardness, Total	**121**	1	5	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:15	SM2340B	
Miscellaneous Physical/Conventional Chemistry Parameters										
Cyanide (total)	ND	0.0020	0.10	mg/L	1	AF73259	06/08/17 12:00	06/08/17 17:24	10-204-00-1X	U
Anions by EPA Method 300.0										
Chloride	**15**	0.10	0.50	mg/L	1	AF73223	06/08/17 02:26	06/08/17 02:26	EPA 300.0	
Fluoride	**0.11**	0.070	0.10	mg/L	1	AF73223	06/08/17 02:26	06/08/17 02:26	EPA 300.0	
Nitrate as N	**0.37**	0.040	0.40	mg/L	1	AF73223	06/08/17 02:26	06/08/17 02:26	EPA 300.0	J
Nitrite as N	ND	0.050	0.40	mg/L	1	AF73223	06/08/17 02:26	06/08/17 02:26	EPA 300.0	U
Sulfate as SO4	**48**	1.0	2.5	mg/L	5	AF73223	06/08/17 02:10	06/08/17 02:10	EPA 300.0	

LGRS-01: Sonic Shallow

17F0528-01(Water)

Volatile Organic Compounds by EPA Method 524.2

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Carbon tetrachloride	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Chlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,1-Dichloroethane	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,2-Dichloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,1-Dichloroethene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,2-Dichloropropane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Ethylbenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Methylene chloride	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Styrene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Tetrachloroethene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Toluene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Trichloroethene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Trichlorofluoromethane	ND	0.50	5.0	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Trichlorotrifluoroethane	ND	0.40	10	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Vinyl chloride	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Xylenes (total)	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/14/17 00:06	EPA 524.2	U
Surrogate: Bromofluorobenzene			*96.3 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/14/17 00:06*	*EPA 524.2*	
Surrogate: Dibromofluoromethane			*84.2 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/14/17 00:06*	*EPA 524.2*	
Surrogate: Toluene-d8			*96.8 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/14/17 00:06*	*EPA 524.2*	

LGRS-01: Sonic Shallow

17F0528-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chlorinated Pesticides and PCBs by EPA Method 508										
Endrin	ND	0.030	0.10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Heptachlor	ND	0.010	0.010	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Heptachlor epoxide	ND	0.010	0.010	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Hexachlorobenzene	ND	0.010	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Methoxychlor	ND	0.020	10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1016	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1221	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1232	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1242	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1248	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1254	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
PCB-1260	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Total PCBs	ND	0.30	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Toxaphene	ND	0.40	1.0	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Chlordane (tech)	ND	0.030	0.10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 01:20	EPA 508	U
Surrogate: Dibutylchlorendate			*71.6 %*	*70-130*		*AF73368*	*06/12/17 00:00*	*06/14/17 01:20*	*EPA 508*	
Nitrogen- and Phosphorus- Pesticides by EPA Method 507										
Alachlor	ND	0.50	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 20:32	EPA 507	U
Atrazine	ND	0.30	0.50	ug/L	1	AF73506	06/14/17 13:23	06/19/17 20:32	EPA 507	U
Molinate	ND	0.20	2.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 20:32	EPA 507	U
Simazine	ND	0.30	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 20:32	EPA 507	U
Thiobencarb	ND	0.20	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 20:32	EPA 507	U
Surrogate: 1,3-Dimethyl-2-nitrobenzene			*97.8 %*	*70-130*		*AF73506*	*06/14/17 13:23*	*06/19/17 20:32*	*EPA 507*	

Todd Groundwater	Project Manager:	Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project:	SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number:	[none]	06/23/17 14:35

LGRS-01: Sonic Shallow

17F0528-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organic Analytes by EPA Method 504.1										
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L	1	AF73284	06/12/17 07:00	06/13/17 02:25	EPA 504.1	U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L	1	AF73284	06/12/17 07:00	06/13/17 02:25	EPA 504.1	U
Chlorinated Acids by EPA Method 515.1										
Bentazon	ND	0.40	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
2,4-D	ND	0.80	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
Dalapon	ND	6.0	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
Dinoseb	ND	0.80	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
Pentachlorophenol	ND	0.20	0.20	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
Picloram	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 04:40	EPA 515.1	U
Surrogate: DCAA			*98.5 %*	*70-130*		*AF73233*	*06/08/17 07:00*	*06/15/17 04:40*	*EPA 515.1*	
Carbamates by EPA Method 531.1										
Carbofuran	ND	0.90	5.0	ug/L	1	AF73245	06/12/17 07:39	06/13/17 04:13	EPA 531.1	U
Oxamyl	ND	1.0	20	ug/L	1	AF73245	06/12/17 07:39	06/13/17 04:13	EPA 531.1	U
Endothall by EPA Method 548.1										
Endothall	ND	20	45	ug/L	1	AF73435	06/13/17 07:22	06/22/17 18:55	EPA 548.1	U
Glyphosate by EPA Method 547										
Glyphosate	ND	3.0	25	ug/L	1	AF73536	06/15/17 08:31	06/15/17 20:15	EPA 547	U
Diquat by EPA Method 549.2										
Diquat	ND	2.0	4.0	ug/L	1	AF73242	06/08/17 06:37	06/14/17 19:59	EPA 549.2	U

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73315 - Metals Digest											
Blank (AF73315-BLK1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	ND	0.20	1.0	mg/L							U
Iron	ND	20	100	ug/L							U
Magnesium	ND	0.030	1.0	mg/L							U
Potassium	ND	0.040	1.0	mg/L							U
Sodium	0.0682	0.020	1.0	mg/L							J
LCS (AF73315-BS1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	6.86	0.20	1.0	mg/L	8.00		85.7	85-115			
Iron	1730	20	100	ug/L	2000		86.6	85-115			
Magnesium	7.08	0.030	1.0	mg/L	8.00		88.5	85-115			
Potassium	7.21	0.040	1.0	mg/L	8.00		90.1	85-115			
Sodium	6.87	0.020	1.0	mg/L	8.00		85.9	85-115			
Duplicate (AF73315-DUP1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	2.11	0.20	1.0	mg/L		2.09			0.730	20	
Iron	ND	20	100	ug/L		ND				20	U
Magnesium	0.684	0.030	1.0	mg/L		0.685			0.255	20	J
Potassium	0.292	0.040	1.0	mg/L		0.273			6.59	20	J
Sodium	162	0.020	1.0	mg/L		165			2.04	20	
Matrix Spike (AF73315-MS1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	9.39	0.20	1.0	mg/L	8.00	2.09	91.2	70-130			
Iron	1740	20	100	ug/L	2000	ND	86.8	70-130			
Magnesium	7.70	0.030	1.0	mg/L	8.00	0.685	87.7	70-130			
Potassium	7.80	0.040	1.0	mg/L	8.00	0.273	94.1	70-130			
Sodium	167	0.020	1.0	mg/L	8.00	165	21.5	70-130			QM-4X
Matrix Spike (AF73315-MS2)		**Source: 17F0949-08**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	279	0.20	1.0	mg/L	8.00	280	NR	70-130			QM-4X
Iron	2250	20	100	ug/L	2000	507	87.2	70-130			
Magnesium	192	0.030	1.0	mg/L	8.00	192	3.43	70-130			QM-4X
Potassium	12.4	0.040	1.0	mg/L	8.00	4.96	93.3	70-130			

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73315 - Metals Digest											
Matrix Spike Dup (AF73315-MSD1)		**Source: 17F0534-02**			Prepared: 06/12/17	Analyzed: 06/21/17					
Calcium	9.01	0.20	1.0	mg/L	8.00	2.09	86.5	70-130	4.15	20	
Iron	1750	20	100	ug/L	2000	ND	87.5	70-130	0.832	20	
Magnesium	7.69	0.030	1.0	mg/L	8.00	0.685	87.6	70-130	0.0968	20	
Potassium	7.82	0.040	1.0	mg/L	8.00	0.273	94.3	70-130	0.226	20	
Sodium	170	0.020	1.0	mg/L	8.00	165	60.9	70-130	1.87	20	QM-4X
Batch AF73665 - EPA 245.1 Hg Water											
Blank (AF73665-BLK1)					Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	ND	0.060	1.0	ug/L							U
LCS (AF73665-BS1)					Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	2.52	0.060	1.0	ug/L	2.50		101	85-115			
Duplicate (AF73665-DUP1)		**Source: 17F0524-01**			Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	ND	0.060	1.0	ug/L		ND				20	U
Matrix Spike (AF73665-MS1)		**Source: 17F0524-01**			Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	2.25	0.060	1.0	ug/L	2.50	ND	90.0	70-130			
Matrix Spike (AF73665-MS2)		**Source: 17F0782-01**			Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	2.31	0.060	1.0	ug/L	2.50	ND	92.4	70-130			
Matrix Spike Dup (AF73665-MSD1)		**Source: 17F0524-01**			Prepared: 06/19/17	Analyzed: 06/20/17					
Mercury	2.27	0.060	1.0	ug/L	2.50	ND	90.8	70-130	0.885	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73222 - General Preparation											
Blank (AF73222-BLK1)					Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L							U
LCS (AF73222-BS1)					Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.2	0.050	1.0	ug/L	10.0		102	90-110			
Duplicate (AF73222-DUP1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	0.324	0.050	1.0	ug/L		0.328			1.23	20	J
Matrix Spike (AF73222-MS1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.2	0.050	1.0	ug/L	10.0	0.328	98.7	90-110			
Matrix Spike Dup (AF73222-MSD1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.3	0.050	1.0	ug/L	10.0	0.328	99.5	90-110	0.742	20	

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73318 - EPA 200.8											
Blank (AF73318-BLK1)					Prepared: 06/09/17 Analyzed: 06/12/17						
Aluminum	ND	2.0	50	ug/L							U
Antimony	0.0315	0.020	6.0	ug/L							J
Arsenic	ND	0.20	2.0	ug/L							U
Barium	ND	0.050	100	ug/L							U
Cadmium	ND	0.050	1.0	ug/L							U
Chromium	ND	0.080	10	ug/L							U
Copper	ND	0.050	50	ug/L							U
Lead	ND	0.020	5.0	ug/L							U
Manganese	ND	0.050	20	ug/L							U
Nickel	ND	0.060	10	ug/L							U
Selenium	ND	0.20	5.0	ug/L							U
Silver	ND	0.050	10	ug/L							U
Uranium	ND	0.020	1.0	pCi/l							U
Zinc	ND	0.50	50	ug/L							U
LCS (AF73318-BS1)					Prepared: 06/09/17 Analyzed: 06/12/17						
Aluminum	575	2.0	50	ug/L	520		111	85-115			
Antimony	21.1	0.020	6.0	ug/L	20.0		106	85-115			
Arsenic	21.0	0.20	2.0	ug/L	20.0		105	85-115			
Barium	19.8	0.050	100	ug/L	20.0		99.2	85-115			J
Beryllium	21.9	0.020	1.0	ug/L	20.0		109	85-115			
Cadmium	19.8	0.050	1.0	ug/L	20.0		99.2	85-115			
Chromium	19.7	0.080	10	ug/L	20.0		98.5	85-115			
Copper	20.1	0.050	50	ug/L	20.0		101	85-115			J
Lead	21.5	0.020	5.0	ug/L	20.0		108	85-115			
Manganese	20.4	0.050	20	ug/L	20.0		102	85-115			
Nickel	19.9	0.060	10	ug/L	20.0		99.7	85-115			
Selenium	21.3	0.20	5.0	ug/L	20.0		107	85-115			
Silver	20.0	0.050	10	ug/L	20.0		100	85-115			
Thallium	21.5	0.050	1.0	ug/L	20.0		108	85-115			
Uranium	13.6	0.020	1.0	pCi/l	13.4		101	85-115			
Zinc	105	0.50	50	ug/L	100		105	85-115			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73318 - EPA 200.8											
Duplicate (AF73318-DUP1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	2.89	2.0	50	ug/L		3.12			7.39	20	J
Antimony	0.240	0.020	6.0	ug/L		0.234			2.47	20	J
Arsenic	0.673	0.20	2.0	ug/L		0.661			1.68	20	J
Barium	2.66	0.050	100	ug/L		2.65			0.312	20	J
Beryllium	ND	0.020	1.0	ug/L		ND				20	U
Cadmium	ND	0.050	1.0	ug/L		ND				20	U
Chromium	2.66	0.080	10	ug/L		2.64			0.522	20	J
Copper	867	0.050	50	ug/L		877			1.18	20	
Lead	2.90	0.020	5.0	ug/L		2.78			3.95	20	J
Manganese	0.244	0.050	20	ug/L		0.248			1.49	20	J
Nickel	3.65	0.060	10	ug/L		3.58			1.82	20	J
Selenium	1.10	0.20	5.0	ug/L		1.03			6.49	20	J
Silver	0.121	0.050	10	ug/L		0.101			18.5	20	J
Thallium	ND	0.050	1.0	ug/L		ND				20	U
Uranium	0.731	0.020	1.0	pCi/l		0.715			2.29	20	J
Zinc	121	0.50	50	ug/L		122			1.20	20	
MRL Check (AF73318-MRL1)					Prepared: 06/09/17 Analyzed: 06/12/17						
Lead	0.460	0.020	5.0	ug/L	0.400		115	0-200			J
Thallium	0.175	0.050	1.0	ug/L	0.160		110	0-200			J
Matrix Spike (AF73318-MS1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	569	2.0	50	ug/L	520	3.12	109	70-130			
Antimony	22.8	0.020	6.0	ug/L	20.0	0.234	113	70-130			
Arsenic	22.6	0.20	2.0	ug/L	20.0	0.661	109	70-130			
Barium	22.2	0.050	100	ug/L	20.0	2.65	97.8	70-130			J
Beryllium	22.5	0.020	1.0	ug/L	20.0	ND	112	70-130			
Cadmium	19.6	0.050	1.0	ug/L	20.0	ND	98.2	70-130			
Chromium	22.2	0.080	10	ug/L	20.0	2.64	97.6	70-130			
Copper	863	0.050	50	ug/L	20.0	877	NR	70-130			QM-4X
Lead	23.7	0.020	5.0	ug/L	20.0	2.78	105	70-130			
Manganese	19.7	0.050	20	ug/L	20.0	0.248	97.4	70-130			J
Nickel	22.6	0.060	10	ug/L	20.0	3.58	95.2	70-130			
Selenium	21.4	0.20	5.0	ug/L	20.0	1.03	102	70-130			
Silver	19.7	0.050	10	ug/L	20.0	0.101	97.9	70-130			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73318 - EPA 200.8											
Matrix Spike (AF73318-MS1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Thallium	20.6	0.050	1.0	ug/L	20.0	ND	103	70-130			
Uranium	15.5	0.020	1.0	pCi/l	13.4	0.715	111	70-130			
Zinc	210	0.50	50	ug/L	100	122	88.5	70-130			
Matrix Spike (AF73318-MS2)		**Source: 17F0898-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	970	2.0	50	ug/L	520	374	114	70-130			
Antimony	21.6	0.020	6.0	ug/L	20.0	0.763	104	70-130			
Arsenic	21.0	0.20	2.0	ug/L	20.0	0.440	103	70-130			
Barium	32.6	0.050	100	ug/L	20.0	12.6	100	70-130			J
Beryllium	22.8	0.020	1.0	ug/L	20.0	0.0233	114	70-130			
Cadmium	19.7	0.050	1.0	ug/L	20.0	0.237	97.5	70-130			
Chromium	22.3	0.080	10	ug/L	20.0	1.46	104	70-130			
Copper	36.8	0.050	50	ug/L	20.0	16.8	100	70-130			J
Lead	24.6	0.020	5.0	ug/L	20.0	4.54	100	70-130			
Manganese	41.0	0.050	20	ug/L	20.0	20.2	104	70-130			
Nickel	22.9	0.060	10	ug/L	20.0	2.20	103	70-130			
Selenium	20.3	0.20	5.0	ug/L	20.0	ND	101	70-130			
Silver	20.0	0.050	10	ug/L	20.0	0.158	99.1	70-130			
Thallium	19.8	0.050	1.0	ug/L	20.0	ND	99.0	70-130			
Uranium	12.8	0.020	1.0	pCi/l	13.4	0.0347	95.5	70-130			
Zinc	203	0.50	50	ug/L	100	107	95.6	70-130			
Matrix Spike Dup (AF73318-MSD1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	560	2.0	50	ug/L	520	3.12	107	70-130	1.58	20	
Antimony	23.0	0.020	6.0	ug/L	20.0	0.234	114	70-130	0.897	20	
Arsenic	21.8	0.20	2.0	ug/L	20.0	0.661	106	70-130	3.33	20	
Barium	22.0	0.050	100	ug/L	20.0	2.65	96.7	70-130	0.918	20	J
Beryllium	23.1	0.020	1.0	ug/L	20.0	ND	116	70-130	2.86	20	
Cadmium	19.7	0.050	1.0	ug/L	20.0	ND	98.3	70-130	0.111	20	
Chromium	22.5	0.080	10	ug/L	20.0	2.64	99.0	70-130	1.29	20	
Copper	869	0.050	50	ug/L	20.0	877	NR	70-130	0.699	20	QM-4X
Lead	22.4	0.020	5.0	ug/L	20.0	2.78	97.9	70-130	5.88	20	
Manganese	20.0	0.050	20	ug/L	20.0	0.248	99.0	70-130	1.61	20	
Nickel	22.6	0.060	10	ug/L	20.0	3.58	95.2	70-130	0.0365	20	
Selenium	21.4	0.20	5.0	ug/L	20.0	1.03	102	70-130	0.0287	20	

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73318 - EPA 200.8

Matrix Spike Dup (AF73318-MSD1) **Source: 17F0534-01** Prepared: 06/09/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Silver	19.8	0.050	10	ug/L	20.0	0.101	98.4	70-130	0.433	20	
Thallium	19.4	0.050	1.0	ug/L	20.0	ND	97.2	70-130	5.72	20	
Uranium	14.8	0.020	1.0	pCi/l	13.4	0.715	105	70-130	5.14	20	
Zinc	212	0.50	50	ug/L	100	122	89.7	70-130	0.581	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AE74270 - General Preparation											
Blank (AE74270-BLK1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L							U
LCS (AE74270-BS1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.181	0.030	0.050	mg/L	0.200		90.5	80-120			
LCS Dup (AE74270-BSD1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.185	0.030	0.050	mg/L	0.200		92.6	80-120	2.22	20	
Duplicate (AE74270-DUP1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L		ND				20	U
Matrix Spike (AE74270-MS1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.169	0.030	0.050	mg/L	0.200	ND	84.4	80-120			
Matrix Spike Dup (AE74270-MSD1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.173	0.030	0.050	mg/L	0.200	ND	86.5	80-120	2.38	20	
Batch AF73221 - General Prep (DU)											
Duplicate (AF73221-DUP1)		**Source: 17F0546-01**			Prepared & Analyzed: 06/06/17						
Turbidity	0.210	0.050	0.10	NTU		0.210			0.00	15	
Duplicate (AF73221-DUP2)		**Source: 17F0596-01**			Prepared & Analyzed: 06/06/17						
Turbidity	0.0500	0.050	0.10	NTU		0.0500			0.00	15	J
Reference (AF73221-SRM1)					Prepared & Analyzed: 06/06/17						
Turbidity	0.170	0.050	0.10	NTU	0.132		129	0-200			

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73237 - General Preparation											
Duplicate (AF73237-DUP1)		**Source: 17F0519-01**			Prepared & Analyzed: 06/12/17						
Hydroxide	ND	1.0	5.0	mg/L		ND				5	U
Bicarbonate	348	1.0	5.0	mg/L		354			1.74	20	
Carbonate	ND	1.0	5.0	mg/L		ND				20	U
Total Alkalinity as CaCO3	285	1.0	5.0	mg/L		290			1.74	20	
Batch AF73315 - Metals Digest											
Blank (AF73315-BLK1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Hardness, Total	ND	1	5	mg/L							U
Duplicate (AF73315-DUP1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Hardness, Total	8	1	5	mg/L		8			0.385	20	
Batch AF73377 - General Preparation											
Blank (AF73377-BLK1)					Prepared & Analyzed: 06/12/17						
Perchlorate	ND	0.90	4.0	ug/L							U
LCS (AF73377-BS1)					Prepared & Analyzed: 06/12/17						
Perchlorate	25.9	0.90	4.0	ug/L	25.0		103	85-115			
Duplicate (AF73377-DUP1)		**Source: 17F0415-01**			Prepared & Analyzed: 06/12/17						
Perchlorate	ND	0.90	4.0	ug/L		ND				15	U
Matrix Spike (AF73377-MS1)		**Source: 17F0415-01**			Prepared & Analyzed: 06/12/17						
Perchlorate	24.9	0.90	4.0	ug/L	25.0	ND	99.5	70-130			

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73377 - General Preparation											
Matrix Spike Dup (AF73377-MSD1)		**Source: 17F0415-01**			Prepared & Analyzed: 06/12/17						
Perchlorate	25.0	0.90	4.0	ug/L	25.0	ND	100	70-130	0.517	15	
Batch AF73441 - General Preparation											
Blank (AF73441-BLK1)					Prepared: 06/13/17 Analyzed: 06/19/17						
Total Dissolved Solids	ND	5.0	10	mg/L							U
Duplicate (AF73441-DUP1)		**Source: 17F0528-01**			Prepared: 06/13/17 Analyzed: 06/19/17						
Total Dissolved Solids	239	5.0	10	mg/L		234			2.11	15	
Duplicate (AF73441-DUP2)		**Source: 17F0952-06**			Prepared: 06/13/17 Analyzed: 06/19/17						
Total Dissolved Solids	277	5.0	10	mg/L		291			4.70	15	
Batch AF73454 - General Preparation											
Duplicate (AF73454-DUP1)		**Source: 17F0498-02**			Prepared & Analyzed: 06/07/17						
Specific Conductance (EC)	369	1.0	20	umhos/cm		368			0.271	5	
pH	8.11	1.68	1.68	pH Units		8.11			0.00	20	

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73259 - General Preparation											
Blank (AF73259-BLK1)					Prepared & Analyzed: 06/08/17						
Cyanide (total)	ND	0.0020	0.10	mg/L							U
LCS (AF73259-BS1)					Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.227	0.0020	0.10	mg/L	0.200		114	85-115			
Duplicate (AF73259-DUP1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	ND	0.0020	0.10	mg/L		ND				25	U
Matrix Spike (AF73259-MS1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.0873	0.0020	0.10	mg/L	0.200	ND	43.7	85-115			QM-05, J
Matrix Spike (AF73259-MS2)		**Source: 17F0570-01**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.227	0.0020	0.10	mg/L	0.200	0.0164	106	85-115			
Matrix Spike Dup (AF73259-MSD1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.0813	0.0020	0.10	mg/L	0.200	ND	40.6	85-115	7.17	25	QM-05, J

Anions by EPA Method 300.0 - Quality Control

Batch AF73223 - General Preparation

Blank (AF73223-BLK1) Prepared & Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	ND	0.20	0.50	mg/L							U
Chloride	ND	0.10	0.50	mg/L							U
Nitrite as N	ND	0.050	0.40	mg/L							U
Nitrate as N	ND	0.040	0.40	mg/L							U
Fluoride	ND	0.070	0.10	mg/L							U

LCS (AF73223-BS1) Prepared & Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	5.70	0.050	0.40	mg/L	5.56		103	90-110			
Chloride	11.1	0.10	0.50	mg/L	11.1		99.6	90-110			
Sulfate as SO4	22.1	0.20	0.50	mg/L	22.2		99.3	90-110			
Fluoride	5.60	0.070	0.10	mg/L	5.56		101	90-110			
Nitrate as N	5.63	0.040	0.40	mg/L	5.56		101	90-110			

Duplicate (AF73223-DUP1) **Source: 17F0500-02** Prepared & Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	ND	0.050	0.40	mg/L		ND				20	U
Sulfate as SO4	11.0	0.20	0.50	mg/L		11.0			0.199	20	
Chloride	17.4	0.10	0.50	mg/L		17.5			0.240	20	
Nitrate as N	ND	0.040	0.40	mg/L		ND				20	U
Fluoride	0.155	0.070	0.10	mg/L		0.152			1.95	20	

Matrix Spike (AF73223-MS1) **Source: 17F0500-02** Prepared & Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate as N	5.35	0.20	2.0	mg/L	5.56	ND	96.4	80-120			
Sulfate as SO4	30.4	1.0	2.5	mg/L	22.2	11.0	87.1	80-120			
Chloride	27.4	0.50	2.5	mg/L	11.1	17.5	89.1	80-120			
Nitrite as N	5.23	0.25	2.0	mg/L	5.56	ND	94.2	80-120			
Fluoride	5.47	0.35	0.50	mg/L	5.56	ND	98.4	80-120			

Matrix Spike (AF73223-MS2) **Source: 17F0528-01** Prepared & Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	69.8	1.0	2.5	mg/L	22.2	48.0	98.2	80-120			
Chloride	25.6	0.50	2.5	mg/L	11.1	15.3	93.1	80-120			
Fluoride	5.36	0.35	0.50	mg/L	5.56	ND	96.5	80-120			
Nitrate as N	5.79	0.20	2.0	mg/L	5.56	0.370	97.5	80-120			
Nitrite as N	5.36	0.25	2.0	mg/L	5.56	ND	96.4	80-120			

Anions by EPA Method 300.0 - Quality Control

Batch AF73223 - General Preparation

Matrix Spike Dup (AF73223-MSD1) **Source: 17F0500-02** Prepared & Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate as N	5.35	0.20	2.0	mg/L	5.56	ND	96.4	80-120	0.00	20	
Sulfate as SO4	30.5	1.0	2.5	mg/L	22.2	11.0	87.4	80-120	0.219	20	
Fluoride	5.48	0.35	0.50	mg/L	5.56	ND	98.7	80-120	0.304	20	
Chloride	27.4	0.50	2.5	mg/L	11.1	17.5	89.0	80-120	0.0203	20	
Nitrite as N	5.28	0.25	2.0	mg/L	5.56	ND	95.1	80-120	0.951	20	

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

Blank (AF73493-BLK1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	ND	0.30	0.50	ug/L							U
Carbon tetrachloride	ND	0.30	0.50	ug/L							U
Chlorobenzene	ND	0.50	0.50	ug/L							U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,1-Dichloroethane	ND	0.40	0.50	ug/L							U
1,2-Dichloroethane	ND	0.50	0.50	ug/L							U
1,1-Dichloroethene	ND	0.30	0.50	ug/L							U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
1,2-Dichloropropane	ND	0.50	0.50	ug/L							U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L							U
Ethylbenzene	ND	0.50	0.50	ug/L							U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L							U
Methylene chloride	ND	0.40	0.50	ug/L							U
Styrene	ND	0.50	0.50	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L							U
Tetrachloroethene	ND	0.50	0.50	ug/L							U
Toluene	ND	0.30	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L							U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L							U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L							U
Trichloroethene	ND	0.50	0.50	ug/L							U
Trichlorofluoromethane	ND	0.50	5.0	ug/L							U
Trichlorotrifluoroethane	ND	0.40	10	ug/L							U
Vinyl chloride	ND	0.50	0.50	ug/L							U
Xylenes (total)	ND	0.50	0.50	ug/L							U
Surrogate: Bromofluorobenzene	*24.9*			*ug/L*	*25.0*		*99.6*	*70-130*			
Surrogate: Dibromofluoromethane	*20.2*			*ug/L*	*25.0*		*80.7*	*70-130*			
Surrogate: Toluene-d8	*22.5*			*ug/L*	*25.0*		*89.9*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

LCS (AF73493-BS1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.74	0.30	0.50	ug/L	5.00		94.8	70-130			
Carbon tetrachloride	5.15	0.30	0.50	ug/L	5.00		103	70-130			
Chlorobenzene	5.10	0.50	0.50	ug/L	5.00		102	70-130			
1,2-Dichlorobenzene	5.34	0.50	0.50	ug/L	5.00		107	70-130			
1,4-Dichlorobenzene	4.89	0.50	0.50	ug/L	5.00		97.8	70-130			
1,1-Dichloroethane	4.75	0.40	0.50	ug/L	5.00		95.0	70-130			
1,2-Dichloroethane	4.73	0.50	0.50	ug/L	5.00		94.6	70-130			
1,1-Dichloroethene	4.24	0.30	0.50	ug/L	5.00		84.8	70-130			
cis-1,2-Dichloroethene	5.06	0.40	0.50	ug/L	5.00		101	70-130			
trans-1,2-Dichloroethene	4.68	0.40	0.50	ug/L	5.00		93.6	70-130			
1,2-Dichloropropane	4.70	0.50	0.50	ug/L	5.00		94.0	70-130			
Ethylbenzene	5.17	0.50	0.50	ug/L	5.00		103	70-130			
Methyl tert-butyl ether	5.25	0.50	3.0	ug/L	5.00		105	70-130			
Methylene chloride	5.06	0.40	0.50	ug/L	5.00		101	70-130			
Styrene	5.26	0.50	0.50	ug/L	5.00		105	70-130			
1,1,2,2-Tetrachloroethane	5.39	0.50	0.50	ug/L	5.00		108	70-130			
Tetrachloroethene	4.98	0.50	0.50	ug/L	5.00		99.6	70-130			
Toluene	5.04	0.30	0.50	ug/L	5.00		101	70-130			
1,2,4-Trichlorobenzene	5.96	0.40	0.50	ug/L	5.00		119	70-130			
1,1,1-Trichloroethane	4.54	0.40	0.50	ug/L	5.00		90.8	70-130			
1,1,2-Trichloroethane	5.01	0.50	0.50	ug/L	5.00		100	70-130			
Trichloroethene	4.75	0.50	0.50	ug/L	5.00		95.0	70-130			
Trichlorofluoromethane	4.87	0.50	5.0	ug/L	5.00		97.4	70-130			J
Trichlorotrifluoroethane	5.08	0.40	10	ug/L	5.00		102	70-130			J
Vinyl chloride	4.79	0.50	0.50	ug/L	5.00		95.8	70-130			
Xylenes (total)	15.4	0.50	0.50	ug/L	15.0		103	70-130			
Surrogate: Bromofluorobenzene	*25.7*			*ug/L*	*25.0*		*103*	*70-130*			
Surrogate: Dibromofluoromethane	*20.7*			*ug/L*	*25.0*		*82.8*	*70-130*			
Surrogate: Toluene-d8	*22.6*			*ug/L*	*25.0*		*90.3*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

LCS Dup (AF73493-BSD1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.92	0.30	0.50	ug/L	5.00		98.4	70-130	3.73	30	
Carbon tetrachloride	5.35	0.30	0.50	ug/L	5.00		107	70-130	3.81	30	
Chlorobenzene	5.38	0.50	0.50	ug/L	5.00		108	70-130	5.34	30	
1,2-Dichlorobenzene	5.54	0.50	0.50	ug/L	5.00		111	70-130	3.68	30	
1,4-Dichlorobenzene	5.31	0.50	0.50	ug/L	5.00		106	70-130	8.24	30	
1,1-Dichloroethane	4.98	0.40	0.50	ug/L	5.00		99.6	70-130	4.73	30	
1,2-Dichloroethane	4.90	0.50	0.50	ug/L	5.00		98.0	70-130	3.53	30	
1,1-Dichloroethene	4.39	0.30	0.50	ug/L	5.00		87.8	70-130	3.48	30	
cis-1,2-Dichloroethene	5.18	0.40	0.50	ug/L	5.00		104	70-130	2.34	30	
trans-1,2-Dichloroethene	4.81	0.40	0.50	ug/L	5.00		96.2	70-130	2.74	30	
1,2-Dichloropropane	5.02	0.50	0.50	ug/L	5.00		100	70-130	6.58	30	
Ethylbenzene	5.41	0.50	0.50	ug/L	5.00		108	70-130	4.54	30	
Methyl tert-butyl ether	5.41	0.50	3.0	ug/L	5.00		108	70-130	3.00	30	
Methylene chloride	5.10	0.40	0.50	ug/L	5.00		102	70-130	0.787	30	
Styrene	5.56	0.50	0.50	ug/L	5.00		111	70-130	5.55	30	
1,1,2,2-Tetrachloroethane	5.64	0.50	0.50	ug/L	5.00		113	70-130	4.53	30	
Tetrachloroethene	5.22	0.50	0.50	ug/L	5.00		104	70-130	4.71	30	
Toluene	5.27	0.30	0.50	ug/L	5.00		105	70-130	4.46	30	
1,2,4-Trichlorobenzene	6.31	0.40	0.50	ug/L	5.00		126	70-130	5.70	30	
1,1,1-Trichloroethane	4.84	0.40	0.50	ug/L	5.00		96.8	70-130	6.40	30	
1,1,2-Trichloroethane	5.35	0.50	0.50	ug/L	5.00		107	70-130	6.56	30	
Trichloroethene	4.92	0.50	0.50	ug/L	5.00		98.4	70-130	3.52	30	
Trichlorofluoromethane	4.89	0.50	5.0	ug/L	5.00		97.8	70-130	0.410	30	J
Trichlorotrifluoroethane	5.08	0.40	10	ug/L	5.00		102	70-130	0.00	30	J
Vinyl chloride	4.90	0.50	0.50	ug/L	5.00		98.0	70-130	2.27	30	
Xylenes (total)	16.0	0.50	0.50	ug/L	15.0		107	70-130	3.75	30	
Surrogate: Bromofluorobenzene	*26.1*			*ug/L*	*25.0*		*105*	*70-130*			
Surrogate: Dibromofluoromethane	*21.3*			*ug/L*	*25.0*		*85.3*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*91.8*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73493 - VOAs in Water GCMS											
Matrix Spike (AF73493-MS1)		**Source: 17F0658-01**			Prepared: 06/13/17 Analyzed: 06/14/17						
Benzene	4.74	0.30	0.50	ug/L	5.00	ND	94.8	70-130			
Carbon tetrachloride	4.72	0.30	0.50	ug/L	5.00	ND	94.4	70-130			
Chlorobenzene	5.28	0.50	0.50	ug/L	5.00	ND	106	70-130			
1,2-Dichlorobenzene	5.44	0.50	0.50	ug/L	5.00	ND	109	70-130			
1,4-Dichlorobenzene	5.15	0.50	0.50	ug/L	5.00	ND	103	70-130			
1,1-Dichloroethane	5.16	0.40	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloroethane	4.48	0.50	0.50	ug/L	5.00	ND	89.6	70-130			
1,1-Dichloroethene	5.18	0.30	0.50	ug/L	5.00	ND	104	70-130			
cis-1,2-Dichloroethene	5.24	0.40	0.50	ug/L	5.00	ND	105	70-130			
trans-1,2-Dichloroethene	5.04	0.40	0.50	ug/L	5.00	ND	101	70-130			
1,2-Dichloropropane	4.56	0.50	0.50	ug/L	5.00	ND	91.2	70-130			
Ethylbenzene	5.42	0.50	0.50	ug/L	5.00	ND	108	70-130			
Methyl tert-butyl ether	4.89	0.50	3.0	ug/L	5.00	ND	97.8	70-130			
Methylene chloride	4.91	0.40	0.50	ug/L	5.00	ND	98.2	70-130			
Styrene	5.18	0.50	0.50	ug/L	5.00	ND	104	70-130			
1,1,2,2-Tetrachloroethane	5.13	0.50	0.50	ug/L	5.00	ND	103	70-130			
Tetrachloroethene	5.63	0.50	0.50	ug/L	5.00	ND	113	70-130			
Toluene	5.43	0.30	0.50	ug/L	5.00	ND	109	70-130			
1,2,4-Trichlorobenzene	6.00	0.40	0.50	ug/L	5.00	ND	120	70-130			
1,1,1-Trichloroethane	4.30	0.40	0.50	ug/L	5.00	ND	86.0	70-130			
1,1,2-Trichloroethane	5.08	0.50	0.50	ug/L	5.00	ND	102	70-130			
Trichloroethene	4.92	0.50	0.50	ug/L	5.00	ND	98.4	70-130			
Trichlorofluoromethane	5.94	0.50	5.0	ug/L	5.00	ND	119	70-130			
Trichlorotrifluoroethane	6.20	0.40	10	ug/L	5.00	ND	124	70-130			J
Vinyl chloride	4.85	0.50	0.50	ug/L	5.00	ND	97.0	70-130			
Xylenes (total)	16.1	0.50	0.50	ug/L	15.0	ND	107	70-130			
Surrogate: Bromofluorobenzene	*23.2*			*ug/L*	*25.0*		*92.8*	*70-130*			
Surrogate: Dibromofluoromethane	*21.2*			*ug/L*	*25.0*		*84.6*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*91.9*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

Matrix Spike Dup (AF73493-MSD1) **Source: 17F0658-01** Prepared: 06/13/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.60	0.30	0.50	ug/L	5.00	ND	92.0	70-130	3.00	30	
Carbon tetrachloride	4.80	0.30	0.50	ug/L	5.00	ND	96.0	70-130	1.68	30	
Chlorobenzene	5.02	0.50	0.50	ug/L	5.00	ND	100	70-130	5.05	30	
1,2-Dichlorobenzene	5.32	0.50	0.50	ug/L	5.00	ND	106	70-130	2.23	30	
1,4-Dichlorobenzene	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130	3.16	30	
1,1-Dichloroethane	4.98	0.40	0.50	ug/L	5.00	ND	99.6	70-130	3.55	30	
1,2-Dichloroethane	4.37	0.50	0.50	ug/L	5.00	ND	87.4	70-130	2.49	30	
1,1-Dichloroethene	4.95	0.30	0.50	ug/L	5.00	ND	99.0	70-130	4.54	30	
cis-1,2-Dichloroethene	5.09	0.40	0.50	ug/L	5.00	ND	102	70-130	2.90	30	
trans-1,2-Dichloroethene	4.90	0.40	0.50	ug/L	5.00	ND	98.0	70-130	2.82	30	
1,2-Dichloropropane	4.30	0.50	0.50	ug/L	5.00	ND	86.0	70-130	5.87	30	
Ethylbenzene	5.20	0.50	0.50	ug/L	5.00	ND	104	70-130	4.14	30	
Methyl tert-butyl ether	4.82	0.50	3.0	ug/L	5.00	ND	96.4	70-130	1.44	30	
Methylene chloride	4.76	0.40	0.50	ug/L	5.00	ND	95.2	70-130	3.10	30	
Styrene	4.93	0.50	0.50	ug/L	5.00	ND	98.6	70-130	4.95	30	
1,1,2,2-Tetrachloroethane	5.03	0.50	0.50	ug/L	5.00	ND	101	70-130	1.97	30	
Tetrachloroethene	5.50	0.50	0.50	ug/L	5.00	ND	110	70-130	2.34	30	
Toluene	5.15	0.30	0.50	ug/L	5.00	ND	103	70-130	5.29	30	
1,2,4-Trichlorobenzene	5.82	0.40	0.50	ug/L	5.00	ND	116	70-130	3.05	30	
1,1,1-Trichloroethane	4.22	0.40	0.50	ug/L	5.00	ND	84.4	70-130	1.88	30	
1,1,2-Trichloroethane	4.72	0.50	0.50	ug/L	5.00	ND	94.4	70-130	7.35	30	
Trichloroethene	4.69	0.50	0.50	ug/L	5.00	ND	93.8	70-130	4.79	30	
Trichlorofluoromethane	5.79	0.50	5.0	ug/L	5.00	ND	116	70-130	2.56	30	
Trichlorotrifluoroethane	6.08	0.40	10	ug/L	5.00	ND	122	70-130	1.95	30	J
Vinyl chloride	4.82	0.50	0.50	ug/L	5.00	ND	96.4	70-130	0.620	30	
Xylenes (total)	15.5	0.50	0.50	ug/L	15.0	ND	103	70-130	3.79	30	
Surrogate: Bromofluorobenzene	*23.2*			*ug/L*	*25.0*		*92.7*	*70-130*			
Surrogate: Dibromofluoromethane	*21.4*			*ug/L*	*25.0*		*85.5*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*92.1*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73368 - SVOAs in Water GC											
Blank (AF73368-BLK1)					Prepared: 06/12/17 Analyzed: 06/13/17						
Endrin	ND	0.030	0.10	ug/L							U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L							U
Heptachlor	ND	0.010	0.010	ug/L							U
Heptachlor epoxide	ND	0.010	0.010	ug/L							U
Hexachlorobenzene	ND	0.010	0.50	ug/L							U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L							U
Methoxychlor	ND	0.020	10	ug/L							U
PCB-1016	ND	0.030	0.50	ug/L							U
PCB-1221	ND	0.030	0.50	ug/L							U
PCB-1232	ND	0.030	0.50	ug/L							U
PCB-1242	ND	0.030	0.50	ug/L							U
PCB-1248	ND	0.030	0.50	ug/L							U
PCB-1254	ND	0.030	0.50	ug/L							U
PCB-1260	ND	0.030	0.50	ug/L							U
Total PCBs	ND	0.30	0.50	ug/L							U
Toxaphene	ND	0.40	1.0	ug/L							U
Chlordane (tech)	ND	0.030	0.10	ug/L							U
Surrogate: Dibutylchlorendate	*0.796*			*ug/L*	*0.978*		*81.4*	*70-130*			
LCS (AF73368-BS1)					Prepared: 06/12/17 Analyzed: 06/13/17						
Endrin	0.227	0.030	0.10	ug/L	0.280		81.1	70-130			
HCH-gamma (Lindane)	0.214	0.010	0.20	ug/L	0.280		76.5	70-130			
Heptachlor	0.213	0.010	0.010	ug/L	0.280		76.2	70-130			
Heptachlor epoxide	0.214	0.010	0.010	ug/L	0.280		76.5	70-130			
Hexachlorobenzene	0.208	0.010	0.50	ug/L	0.280		74.4	70-130			J
Hexachlorocyclopentadiene	0.161	0.040	1.0	ug/L	0.560		28.7	15-90			J
Methoxychlor	0.227	0.020	10	ug/L	0.280		81.1	70-130			J
Surrogate: Dibutylchlorendate	*0.828*			*ug/L*	*0.978*		*84.7*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73368 - SVOAs in Water GC

LCS Dup (AF73368-BSD1) Prepared: 06/12/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.242	0.030	0.10	ug/L	0.280		86.3	70-130	6.26	25	
HCH-gamma (Lindane)	0.232	0.010	0.20	ug/L	0.280		82.9	70-130	8.02	25	
Heptachlor	0.207	0.010	0.010	ug/L	0.280		74.0	70-130	2.95	25	
Heptachlor epoxide	0.235	0.010	0.010	ug/L	0.280		83.8	70-130	9.08	25	
Hexachlorocyclopentadiene	0.161	0.040	1.0	ug/L	0.560		28.8	15-90	0.331	50	J
Hexachlorobenzene	0.218	0.010	0.50	ug/L	0.280		77.9	70-130	4.62	25	J
Methoxychlor	0.244	0.020	10	ug/L	0.280		87.0	70-130	7.01	25	J
Surrogate: Dibutylchlorendate	*0.850*			*ug/L*	*0.978*		*86.9*	*70-130*			

Matrix Spike (AF73368-MS1) **Source: 17F0892-01** Prepared: 06/12/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.288	0.030	0.10	ug/L	0.280	ND	103	70-130			
HCH-gamma (Lindane)	0.260	0.010	0.20	ug/L	0.280	ND	92.7	70-130			
Heptachlor	0.237	0.010	0.010	ug/L	0.280	ND	84.7	70-130			
Heptachlor epoxide	0.265	0.010	0.010	ug/L	0.280	ND	94.7	70-130			
Hexachlorocyclopentadiene	0.220	0.040	1.0	ug/L	0.560	ND	39.3	15-90			J
Hexachlorobenzene	0.229	0.010	0.50	ug/L	0.280	ND	81.9	70-130			J
Methoxychlor	0.290	0.020	10	ug/L	0.280	ND	104	70-130			J
Surrogate: Dibutylchlorendate	*0.990*			*ug/L*	*0.978*		*101*	*70-130*			

Matrix Spike Dup (AF73368-MSD1) **Source: 17F0892-01** Prepared: 06/12/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.273	0.030	0.10	ug/L	0.280	ND	97.5	70-130	5.28	25	
HCH-gamma (Lindane)	0.246	0.010	0.20	ug/L	0.280	ND	87.9	70-130	5.28	25	
Heptachlor	0.225	0.010	0.010	ug/L	0.280	ND	80.5	70-130	5.11	25	
Heptachlor epoxide	0.255	0.010	0.010	ug/L	0.280	ND	91.1	70-130	3.85	25	
Hexachlorocyclopentadiene	0.192	0.040	1.0	ug/L	0.560	ND	34.3	15-90	13.5	50	J
Hexachlorobenzene	0.212	0.010	0.50	ug/L	0.280	ND	75.7	70-130	7.93	25	J
Methoxychlor	0.285	0.020	10	ug/L	0.280	ND	102	70-130	1.86	25	J
Surrogate: Dibutylchlorendate	*0.968*			*ug/L*	*0.978*		*99.0*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73506 - SVOAs in Water GC											
Blank (AF73506-BLK1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	ND	0.50	1.0	ug/L							U
Atrazine	ND	0.30	0.50	ug/L							U
Molinate	ND	0.20	2.0	ug/L							U
Simazine	ND	0.30	1.0	ug/L							U
Thiobencarb	ND	0.20	1.0	ug/L							U
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.79*			*ug/L*	*2.00*		*89.6*	*70-130*			
LCS (AF73506-BS1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	1.58	0.50	1.0	ug/L	2.00		79.1	70-130			
Atrazine	1.69	0.30	0.50	ug/L	2.00		84.5	70-130			
Molinate	1.73	0.20	2.0	ug/L	2.00		86.7	70-130			J
Simazine	1.59	0.30	1.0	ug/L	2.00		79.4	70-130			
Thiobencarb	1.69	0.20	1.0	ug/L	2.00		84.5	70-130			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.78*			*ug/L*	*2.00*		*89.2*	*70-130*			
LCS Dup (AF73506-BSD1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	1.89	0.50	1.0	ug/L	2.00		94.3	70-130	17.5	30	
Atrazine	1.89	0.30	0.50	ug/L	2.00		94.6	70-130	11.3	30	
Molinate	1.82	0.20	2.0	ug/L	2.00		90.9	70-130	4.79	30	J
Simazine	1.90	0.30	1.0	ug/L	2.00		95.1	70-130	18.0	30	
Thiobencarb	1.67	0.20	1.0	ug/L	2.00		83.4	70-130	1.25	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.89*			*ug/L*	*2.00*		*94.4*	*70-130*			
Matrix Spike (AF73506-MS1)		**Source: 17F0413-01**			Prepared: 06/14/17 Analyzed: 06/20/17						
Alachlor	1.68	0.50	1.0	ug/L	2.00	ND	84.0	65-135			
Atrazine	1.81	0.30	0.50	ug/L	2.00	ND	90.4	65-135			
Molinate	1.72	0.20	2.0	ug/L	2.00	ND	86.0	65-135			J
Simazine	1.94	0.30	1.0	ug/L	2.00	ND	97.1	65-135			
Thiobencarb	1.85	0.20	1.0	ug/L	2.00	ND	92.6	65-135			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*2.01*			*ug/L*	*2.00*		*101*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73506 - SVOAs in Water GC

Matrix Spike Dup (AF73506-MSD1) **Source: 17F0413-01** Prepared: 06/14/17 Analyzed: 06/20/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	1.81	0.50	1.0	ug/L	2.00	ND	90.5	65-135	7.44	30	
Atrazine	1.62	0.30	0.50	ug/L	2.00	ND	81.1	65-135	10.8	30	
Molinate	1.63	0.20	2.0	ug/L	2.00	ND	81.3	65-135	5.73	30	J
Simazine	1.72	0.30	1.0	ug/L	2.00	ND	86.2	65-135	11.9	30	
Thiobencarb	1.57	0.20	1.0	ug/L	2.00	ND	78.6	65-135	16.4	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*2.02*			*ug/L*	*2.00*		*101*	*70-130*			

Organic Analytes by EPA Method 504.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73284 - EPA 504.1											
Blank (AF73284-BLK1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L							U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L							U
LCS (AF73284-BS1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.321	0.0040	0.010	ug/L	0.250		129	70-130			
1,2-Dibromoethane (EDB)	0.280	0.0050	0.020	ug/L	0.250		112	70-130			
LCS Dup (AF73284-BSD1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.213	0.0040	0.010	ug/L	0.250		85.3	70-130	40.4	25	QL-04
1,2-Dibromoethane (EDB)	0.205	0.0050	0.020	ug/L	0.250		81.8	70-130	31.0	25	QL-04
Matrix Spike (AF73284-MS1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.240	0.0040	0.010	ug/L	0.250	ND	96.2	70-130			
1,2-Dibromoethane (EDB)	0.226	0.0050	0.020	ug/L	0.250	ND	90.5	70-130			
Matrix Spike Dup (AF73284-MSD1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.253	0.0040	0.010	ug/L	0.250	ND	101	70-130	4.99	25	
1,2-Dibromoethane (EDB)	0.235	0.0050	0.020	ug/L	0.250	ND	93.9	70-130	3.78	25	

Chlorinated Acids by EPA Method 515.1 - Quality Control

Batch AF73233 - Herbicides

Blank (AF73233-BLK1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	ND	0.40	2.0	ug/L							U
2,4-D	ND	0.80	10	ug/L							U
Dalapon	ND	6.0	10	ug/L							U
Dinoseb	ND	0.80	2.0	ug/L							U
Pentachlorophenol	ND	0.20	0.20	ug/L							U
Picloram	ND	0.50	1.0	ug/L							U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L							U
Surrogate: DCAA	*13.5*			*ug/L*	*15.0*		*89.8*	*70-130*			

LCS (AF73233-BS1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.04	0.40	2.0	ug/L	1.92		107	70-130			
2,4-D	2.18	0.80	10	ug/L	1.92		113	48-124			J
Dalapon	12.4	6.0	10	ug/L	12.5		99.6	40-112			
Dinoseb	4.85	0.80	2.0	ug/L	6.42		75.5	20-105			
Pentachlorophenol	1.08	0.20	0.20	ug/L	0.960		113	70-130			
Picloram	1.14	0.50	1.0	ug/L	0.960		119	70-130			
2,4,5-TP (Silvex)	0.927	0.50	1.0	ug/L	0.960		96.6	70-130			J
Surrogate: DCAA	*12.7*			*ug/L*	*15.0*		*84.6*	*70-130*			

LCS Dup (AF73233-BSD1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.00	0.40	2.0	ug/L	1.92		104	70-130	2.40	50	
2,4-D	2.20	0.80	10	ug/L	1.92		114	48-124	1.06	50	J
Dalapon	13.0	6.0	10	ug/L	12.5		104	40-112	4.70	50	
Dinoseb	5.56	0.80	2.0	ug/L	6.42		86.6	20-105	13.7	50	
Pentachlorophenol	1.07	0.20	0.20	ug/L	0.960		111	70-130	1.72	50	
Picloram	1.07	0.50	1.0	ug/L	0.960		111	70-130	6.59	50	
2,4,5-TP (Silvex)	1.04	0.50	1.0	ug/L	0.960		108	70-130	11.0	50	
Surrogate: DCAA	*14.8*			*ug/L*	*15.0*		*98.4*	*70-130*			

Chlorinated Acids by EPA Method 515.1 - Quality Control

Batch AF73233 - Herbicides

Matrix Spike (AF73233-MS1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.05	0.40	2.0	ug/L	1.92	ND	107	70-130			
2,4-D	2.25	0.80	10	ug/L	1.92	ND	117	48-124			J
Dalapon	12.3	6.0	10	ug/L	12.5	ND	98.8	40-112			
Dinoseb	6.04	0.80	2.0	ug/L	6.42	ND	94.1	20-105			
Pentachlorophenol	1.03	0.20	0.20	ug/L	0.960	ND	107	70-130			
Picloram	0.949	0.50	1.0	ug/L	0.960	ND	98.9	70-130			J
2,4,5-TP (Silvex)	1.07	0.50	1.0	ug/L	0.960	ND	111	70-130			
Surrogate: DCAA	*15.6*			*ug/L*	*15.0*		*104*	*70-130*			

Matrix Spike Dup (AF73233-MSD1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.07	0.40	2.0	ug/L	1.92	ND	108	70-130	0.779	50	
2,4-D	2.06	0.80	10	ug/L	1.92	ND	108	48-124	8.44	50	J
Dalapon	10.7	6.0	10	ug/L	12.5	ND	85.8	40-112	14.2	50	
Dinoseb	5.26	0.80	2.0	ug/L	6.42	ND	82.0	20-105	13.8	50	
Pentachlorophenol	0.914	0.20	0.20	ug/L	0.960	ND	95.3	70-130	12.0	50	
Picloram	1.01	0.50	1.0	ug/L	0.960	ND	106	70-130	6.54	50	
2,4,5-TP (Silvex)	0.958	0.50	1.0	ug/L	0.960	ND	99.8	70-130	10.8	50	J
Surrogate: DCAA	*14.4*			*ug/L*	*15.0*		*95.9*	*70-130*			

Carbamates by EPA Method 531.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73245 - HPLC											
Blank (AF73245-BLK1)					Prepared & Analyzed: 06/12/17						
Carbofuran	ND	0.90	5.0	ug/L							U
Oxamyl	ND	1.0	20	ug/L							U
LCS (AF73245-BS1)					Prepared & Analyzed: 06/12/17						
Carbofuran	19.0	0.90	5.0	ug/L	20.0		94.9	80-120			
Oxamyl	21.2	1.0	20	ug/L	20.0		106	80-120			
LCS Dup (AF73245-BSD1)					Prepared & Analyzed: 06/12/17						
Carbofuran	22.2	0.90	5.0	ug/L	20.0		111	80-120	15.6	20	
Oxamyl	23.7	1.0	20	ug/L	20.0		119	80-120	11.1	20	
Matrix Spike (AF73245-MS1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	20.9	0.90	5.0	ug/L	20.0	ND	105	65-135			
Oxamyl	24.3	1.0	20	ug/L	20.0	ND	122	65-135			
Matrix Spike Dup (AF73245-MSD1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	24.1	0.90	5.0	ug/L	20.0	ND	120	65-135	14.0	20	
Oxamyl	24.5	1.0	20	ug/L	20.0	ND	122	65-135	0.591	20	

Endothall by EPA Method 548.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73435 - EPA 548.1											
Blank (AF73435-BLK1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	ND	20	45	ug/L							U
LCS (AF73435-BS1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	225	20	45	ug/L	200		112	80-120			
LCS Dup (AF73435-BSD1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	233	20	45	ug/L	200		116	80-120	3.52	30	
Matrix Spike (AF73435-MS1)		**Source: 17F0524-01**			Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	230	20	45	ug/L	200	ND	115	80-120			

Glyphosate by EPA Method 547 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73536 - HPLC											
Blank (AF73536-BLK1)					Prepared & Analyzed: 06/15/17						
Glyphosate	ND	3.0	25	ug/L							U
LCS (AF73536-BS1)					Prepared & Analyzed: 06/15/17						
Glyphosate	113	3.0	25	ug/L	120		94.0	70-130			
LCS Dup (AF73536-BSD1)					Prepared & Analyzed: 06/15/17						
Glyphosate	108	3.0	25	ug/L	120		90.3	70-130	3.99	30	
Matrix Spike (AF73536-MS1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/15/17						
Glyphosate	107	3.0	25	ug/L	120	ND	89.1	70-130			
Matrix Spike Dup (AF73536-MSD1)		**Source: 17F0524-01**			Prepared: 06/15/17 Analyzed: 06/16/17						
Glyphosate	144	3.0	25	ug/L	120	ND	120	70-130	29.8	30	

Diquat by EPA Method 549.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73242 - HPLC											
Blank (AF73242-BLK1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	ND	2.0	4.0	ug/L							U
LCS (AF73242-BS1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	14.3	2.0	4.0	ug/L	20.0		71.5	70-130			
LCS Dup (AF73242-BSD1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	14.8	2.0	4.0	ug/L	20.0		74.0	70-130	3.45	25	
Matrix Spike (AF73242-MS1)		**Source: 17F0463-01**			Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	4.83	2.0	4.0	ug/L	20.0	ND	24.2	70-130			QM-07

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration, detected but not quantified (DNQ).
QL-04	The LCS/LCSD RPD for this analyte was outside of established control limits. Batch accepted based on acceptable recovery for both LCS/LCSD.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
T-14	Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time.
U	Analyte included in analysis, but not detected at or above MDL.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Suite 1
El Dorado Hills, CA 95762

June 19, 2017 Ceres ID: 11470

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482

The following report contains the results for the one drinking water sample received on June 14, 2017. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under Alpha Analytical Laboratories' project # 17F0528.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
11470-001	LGRS-01: Sonic Shallow 17F0528-01	6/14/2017	6/6/2017	10:00

Section II: Data Summary

EPA Method 1613B

Quality Assurance Sample **Method Blank**		**Date Received:** NA
	QC Batch #: 1614	**Date Extracted:** 6/15/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/15/2017
Project ID: 17F0528	**Sample Size:** 1.000 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.15	1.35	5.00		13C-2378-TCDD	100	31-137	
					CRS			
					37Cl4-2378-TCDD	91.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.

EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.

(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

EPA Method 1613B

Quality Assurance Sample		**Date Received:** NA
Ongoing Precision and Recovery	**QC Batch #:** 1614	**Date Extracted:** 6/15/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/15/2017
Project ID: 17F0528	**Sample Size:** 1.000 L	

Analyte	**Conc. (ng/mL)**	**Limits** (a)	**Labeled Standards**	**% Rec.**	**Limits** (a)
2,3,7,8-TCDD	9.11	7.3-14.6	13C-2378-TCDD	102	25-141
			CRS		
			37Cl4-2378-TCDD	93.1	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: LGRS-01: Sonic Shallow 17F0528-01

Project ID:	17F0528	**Ceres Sample ID:**	11470-001	**Date Received:**	6/14/2017
		QC Batch #:	1614	**Date Extracted:**	6/15/2017
Date Collected:	6/6/2017	**Matrix:**	Drinking Water	**ZB-5MS Analysis:**	6/15/2017
Time Collected:	10:00 AM	**Sample Size:**	1.024 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.00	1.35	4.88		13C-2378-TCDD	105	31-137	
					CRS			
					37Cl4-2378-TCDD	104	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0528

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc. 208 Mason St. Ukiah, CA 95482 Phone: (707)468-0401 Fax: (707)468-5267 Project Manager: David S. Pingatore	Ceres Labs 4919 Windplay Dr. El Dorado Hills, CA 95762 Phone :(916) 932-5011 Fax: (916) 932-5017 **Terms: Net 30**

Analysis	**Due**	**Expires**	**Comments**
17F0528-01 LGRS-01: Sonic Shallow [Water] Sampled 06/06/17 10:00			
Dioxin 2378 TCDD DW 1613	06/21/17 12:00	06/06/18 10:00	

Containers Supplied:

1L Amber- Unpres. (AB) 1L Amber- Unpres. (AC)

☐ *Report to State*

System Name: ____ **Employed by:** ____

User ID: ____ **Sampler:** ____

System Number: ____

+QC

	6-7-17		6/14/17 @ 9:25
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Sample Receipt Check List

Ceres ID: 11470	Date/Time: 6/14/17 09:25
Client Project ID: 17F0528	Received Temp: 1.6 °C Acceptable: [✓ Y] / N
Chain of Custody Relinquished by signed?	[✓ Y] / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	[✓ NA]
Unlabeled / Illegible Samples	Y / [✓ N]
Proper Containers:	[✓ Y] / N
Preservation Acceptable (Chemical or Temperature)?	[✓ Y] / N
Drinking Water, Sodium Thiosulfate present?	Y / [✓ N] / NA
Residual Cl?	Y / [✓ N]
Aqueous sample pH: 7	
List COC discrepancies: 6/14/17	
List Damaged Samples: 6/14/17	

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

ASBESTOS TEM LABORATORIES, INC.

EPA 600/4-83 Drinking Water Transmission Electron Microscopy Analytical Report

Laboratory Job #350045

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429

ASBESTOS TEM LABORATORIES, INC

Certified by
CA DPH ELAP
Lab No. 1866

Jun/20/2017

David S. Pingatore
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

RE: LABORATORY JOB # 350045
Transmission electron microscopy analytical results for 1 water sample(s).
Job Site:
Job No.: 17F0528

Enclosed please find results for the TEM analysis of one or more water samples. The analytical procedures were performed according to EPA Method 100.2 for the analysis of asbestos in drinking water.

Prior to analysis, samples are checked for damage, disruption of any chain-of-custody seals, and completeness of accompanying paperwork. If no problems are found, samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Preparation of water samples is performed within a HEPA filtered, Class 100 air, laminar flow clean bench environment. Prior to filtration, water sample containers are ultrasonicated, and the exterior surfaces cleaned. An aliquot of water is drawn from the sample container and drawn through a special filtration apparatus and collected onto a mixed cellulose ester (MCE) or polycarbonate (PC) filter. The filters are removed from the apparatus and dried. A portion of each sample filter is sectioned, placed onto a glass microscope slide, and carbon coated. The filters are further sectioned and placed carbon side up onto 200-mesh copper TEM sample grids in a solvent bath until all filter material is dissolved. The TEM grids are removed and placed into labeled grid storage boxes.

TEM analysis is performed on a Philips EM-300 or CM-12 transmission electron microscope operating at 80 or 100 kV. Initially, the grid is scanned at low and medium magnification to insure proper sample loading, and coherence of the carbon support film. Then TEM grid openings are analyzed at a magnification of 10,000X. All fibers >10 um in length and exhibiting an aspect ratio >3:1 are analyzed. Scanning continues until either 100 asbestiform fibers >10um in length are counted, or an analytical sensitivity of 0.2 million fibers per liter (MFL) is achieved. Analyzed fibers are subjected to detailed morphological and selected area diffraction (SAED) analysis. Fibers indicated as asbestos, or potentially asbestos, are further analyzed by energy dispersive X-ray (EDX) analysis as needed. The number of asbestos fibers detected, and other analytical parameters, are then used to calculate the concentration of asbestos in MFL. The results are entered into a standard report format and reviewed by the analyst and the laboratory manager before release to the client.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: David S. Pingatore

Address:
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

Job Site / No. 17F0528

Report No.: 350045
Date: Jun-20-17
Total Samples Analyzed: 1
Sample Collector:

CLIENT SAMPLE # **17F0528-01**

Laboratory Sample # 1288-01177-001

SAMPLE LOCATION/DESCRIPTION

LGRS-01 : Sonic Shallow [Water]

WATER SAMPLE DATA

Date/Time Collected	Jun-06-17 / 10:00 am	Volume Submitted (ml)	1000
Date/Time Lab Received	Jun-07-17 / 11:59 am	Volume Filtered (ml)	15
Date/Time Filtered	Jun-07-17 / 3:05 pm	Filter & Pore Size	MCE0.22
Date/Time Analyzed	Jun-20-17 / 11:50 am	UV/Ozone Treated:	NO

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		**OTHER**	
CHRYS	**AMPH**	**AMBIG**	**NON-ASB**
NSD	**NSD**	**NSD**	**NSD**

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	**AMPH**	**TOTAL**
< 0.2 MFL	**< 0.2 MFL**	**< 0.2 MFL**

COMMENTS

No Asbestos Detected

Filter Loading: MODERATE

SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	8	Analytical Sensitivity	0.2 MFL
Grid Opening Area (mm2)	0.0088	95% UCL	0.70 MFL
Scan Area (mm2)	0.0704	95% LCL	0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-18564	Analytical Sensitivity	0.01 MFL
Grid Openings Scanned at 10,000X	8	Asbestos Structure Concentration	<0.01 MFL
Volume Filtered (ml)	300		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	MFL = Millions of Fibers per Liter
NSD - No Structures Detected	UCL = Upper Confidence Level
1 mm = 1 millimeter	LCL = Lower Confidence Level

Analyzed by Yang Zhang

Crystal Replogle

Reviewed by Crystal Replogle

350045

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0528

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc.	Asbestos TEM Laboratories, Inc.
208 Mason St.	630 Bancroft Way
Ukiah, CA 95482	Berkeley, CA 94710
Phone: (707)468-0401	Phone :(510) 704-8930
Fax: (707)468-5267	Fax: (510) 704-8429
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	**Due**	**Expires**	**Comments**
17F0528-01 LGRS-01: Sonic Shallow [Water] Sampled 06/06/17 10:00			
Asbestos-DW SUB	06/21/17 12:00	06/08/17 10:00	15.1 16.0

Containers Supplied:

1L Amber- Unpres. (J) 1L Amber- Unpres. (K)

☐ *Report to State*

System Name: ____________ **Employed by:** ____________

User ID: ____________ **Sampler:** ____________

System Number: ____________

	6/7/17		RECEIVED JUN - 7 1:59
Released By	Date	Received By	Date
Released By	Date	Received By	Date

June 23, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706917
Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
LGRS-01: Sonic Shallow	06/06/2017	06/09/2017	SP 1706917-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	06/15/2017:208883 All analysis quality controls are within established criteria
	06/13/2017:206959 All preparation quality controls are within established criteria
903.0	06/16/2017:209037 All analysis quality controls are within established criteria
	06/13/2017:206992 All preparation quality controls are within established criteria
905.0	06/20/2017:209069 All analysis quality controls are within established criteria
	06/13/2017:206993 All preparation quality controls are within established criteria
906.0	06/17/2017:209063 All analysis quality controls are within established criteria
	06/16/2017:207148 All preparation quality controls are within established criteria

June 23, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706917
Customer : 2-20626

Radio QC

Ra - 05	06/22/2017:209277 All analysis quality controls are within established criteria
	06/19/2017:206868 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.** FGL Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-06-23

June 23, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Description : LGRS-01: Sonic Shallow
Project : 17F0528

Lab ID : SP 1706917-001
Customer ID : 2-20626

Sampled On : June 6, 2017-10:00
Sampled By : Not Available
Received On : June 9, 2017-11:30
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.473 ± 0.670	0.899	pCi/L	15/5	900.0	06/13/17-10:00 2P1706959	900.0	06/15/17-12:25 2A1708883
Gross Beta	1.21 ± 0.718	0.854	pCi/L	50	900.0	06/13/17-10:00 2P1706959	900.0	06/15/17-12:25 2A1708883
Strontium 90	0.171 ± 0.475	0.491	pCi/L	8	905.0	06/13/17-18:30 2P1706993	905.0	06/20/17-14:10 2A1709069
Total Alpha Radium (226)	0.084 ± 0.123	0.363	pCi/L	3	903.0	06/13/17-18:14 2P1706992	903.0	06/16/17-16:45 2A1709037
Tritium	323 ± 267	434	pCi/L	20000	906.0	06/16/17-13:13 2P1707148	906.0	06/17/17-01:00 2A1709063
Ra 228	0.044 ± 0.310	0.200	pCi/L	2	Ra - 05	06/19/17-18:00 2P1706868	Ra - 05	06/22/17-19:50 2A1709277

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

June 23, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706917
Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	06/15/17:208883aat	CCV	cpm	8762	41.6 %	35-47	
			CCB	cpm		0.0800	0.21	
Beta	900.0	06/15/17:208883aat	CCV	cpm	8762	88.2 %	83-94	
			CCB	cpm		0.4600	0.51	
Gross Alpha	900.0	06/13/17:206959aat	Blank	pCi/L		0.17	3	
			LCS	pCi/L	108.2	105 %	75-125	
			MS	pCi/L	108.2	83.3 %	60-140	
		(SP 1706919-001)	MSD	pCi/L	108.2	73.8 %	60-140	
			MSRPD	pCi/L	108.2	12.0%	≤30	
Gross Beta	900.0	06/13/17:206959aat	Blank	pCi/L		0.17	4	
			LCS	pCi/L	73.08	125 %	93-144	
			MS	pCi/L	73.09	98.5 %	80-130	
		(SP 1706919-001)	MSD	pCi/L	73.09	94.6 %	80-130	
			MSRPD	pCi/L	108.2	4.0%	≤30	
Alpha	903.0	06/16/17:209037rmm	CCV	cpm	8384	41.0 %	37-46	
			CCB	cpm		0.0400	0.16	
Total Alpha Radium (226)	903.0	06/13/17:206992rmm	RgBlk	pCi/L		-0.01	2	
			LCS	pCi/L	21.85	56.7 %	52-107	
			BS	pCi/L	21.85	67.0 %	43-111	
			BSD	pCi/L	21.85	58.9 %	43-111	
			BSRPD	pCi/L	21.85	12.7%	≤35.5	
Beta	905.0	06/20/17:209069rmm	CCV	cpm	8761	89.9 %	85-93	
			CCB	cpm		0.3800	0.51	
Total Strontium	905.0	06/13/17:206993emv	RgBlk	pCi/L		0.41	2	
			LRS	pCi/L	36.68	65.9 %	53-133	
			BS	pCi/L	36.67	85.1 %	75-125	
			BSD	pCi/L	36.67	80.5 %	75-125	
			BSRPD	pCi/L	36.67	5.6%	≤20	
Tritium	906.0	06/16/17:207148elc	Blank	pCi/L		193	<300	
			LCS	pCi/L	1675	94.6 %	75-125	
			BS	pCi/L	1675	80.1 %	75-125	
			BSD	pCi/L	1675	93.3 %	75-125	
			BSRPD	pCi/L	1675	13.4%	≤25	
	906.0	06/17/17:209063elc	CCV	pCi/L	28860	104 %	90-110	
			CCB	pCi/L		7	500	
Beta	Ra - 05	06/22/17:209277emv	CCV	cpm	8756	90.2 %	84-94	
			CCB	cpm		0.3800	0.48	
Ra 228	Ra - 05	06/19/17:206868emv	RgBlk	pCi/L		0.11	3	
			LRS	pCi/L	37.56	83.0 %	65-108	
			BS	pCi/L	37.56	106 %	75-125	
			BSD	pCi/L	37.56	107 %	75-125	
			BSRPD	pCi/L	37.56	0.2%	≤25	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.

Quality Control - Radio

Definition	
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

eurofins | Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482
Attention: David S. Pingatore
Fax: 707-468-5267

Date of Issue
07/05/2017
EUROFINS EATON ANALYTICAL, INC.

NELAP ACCREDITED TNI LABORATORY
ORELAP 4034

Report: 666417
Project: DRINKING
Group: ORGANICS - EPA 500's

M5B: Magnolia Busse

Project Manager

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.

* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.

* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.

* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Arizona	AZ0778	**Montana**	Cert 0035
Arkansas	Certified	**Nebraska**	Certified
California-Monrovia-ELAP	2813	**Nevada**	CA00006-2016
California-Colton- ELAP	2812	**New Hampshire ***	2959
California-Folsom- ELAP	2820	**New Jersey ***	CA 008
California-Fresno- ELAP	2966	**New Mexico**	Certified
Colorado	Certified	**New York ***	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida *	E871024	**Oregon (Primary AB) ***	**ORELAP 4034**
Georgia	947	**Pennsylvania ***	68-565
Guam	16-003r	**Puerto Rico**	Certified
Hawaii	Certified	**Rhode Island**	LAO00326
Idaho	Certified	**South Carolina**	87016
Illinois *	200033	**South Dakota**	Certified
Indiana	C-CA-01	**Tennessee**	TN02839
Kansas *	E-10268	**Texas ***	T104704230-15-9
Kentucky	90107	**Utah ***	CA000062016-10
Louisiana *	LA16003	**Vermont**	VT0114
Maine	CA0006	**Virginia ***	460260
Maryland	224	**Washington**	C838
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	Certified
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^=$ D		x	
Sulfite	SM 4500-SO^3B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

Acknowledgement of Samples Received

Addr: **Alpha Analytical Laboratories, Inc.**
208 Mason Street
Ukiah, CA 95482

Client ID: ALPHA-UKIAH
Folder #: 666417
Project: DRINKING
Sample Group: ORGANICS - EPA 500's

Attn: David S. Pingatore
Phone: 925 828 6226

Project Manager: Magnolia Busse
Phone: 916-605-3387
PO #: 17F0528

The following samples were received from you on **June 14, 2017** at **0955**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
201706140297	17F0528-01 LGRS-01: Sonic Shallow	06/06/2017 1000
	Variable ID: 17F0528-01	
	@525_FGL_SHORT C	

Test Description

@525_FGL_SHORT C -- Semivolatiles by GCMS

66417

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0528

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Eurofins Eaton Analytical Inc.
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016
Phone :626-568-6463
Fax: 626-568-6324
Terms: Net 30

Analysis	Due	Expires	Comments
17F0528-01 LGRS-01: Sonic Shallow [Water] Sampled 06/06/17 10:00			
525.2 DDW SVOC Reg3	06/21/17 12:00	06/20/17 10:00	

Containers Supplied:
1L Amber-HCl (U)   1L Amber-HCl (V)

☐ *Report to State*

System Name:
User ID:
System Number:
Employed by:
Sampler:

+QC

Released By	Date	Received By	Date
	6-7-17		6-19-17 9:50

Page 1 of 1

eurofins | Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number: 666417

SAMPLES REC'D DAY OF COLLECTION? ☐

SAMPLE TEMP RECEIVED:

IR Gun ID = 39P (Observation= 1.8 °C) (Corr.Factor 02 °C) (Final = 1.6 °C)

CONDITION OF ICE: Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: ____ ON TRAC ✓ DCS ____

Compliance Acceptance Criteria:

1) Chemistry: >0, ≤6°C, not frozen (NELAP) (If received after 24 hrs of sample collection)

2) Microbiology, Distribution: < 10°C, not frozen.(can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) Microbiology, Surface Water: < 10°C (If received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3: (non-GLEC) 524.3: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤10°C if received within 48 hours of sample collection (not the same business day); ≤6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) LT2: Giardia /Cryptosporidium: <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (If received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

6) Dioxin (1613 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (If received after 24 hrs of sample collection)

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:		[illegible]	Eurofins Eaton Analytical	6/14/17	955

Page ___ of ___

Laboratory Comments

Report: 666417
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Flags Legend:

S6 - Surrogate recovery was below laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

The Comments Report may be blank if there are no comments for this report.

Laboratory Hits

Report: 666417
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/14/2017 0955

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL

SUMMARY OF POSITIVE DATA ONLY

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/14/2017 0955

17F0528-01 LGRS-01: Sonic Shallow (201706140297) **Sampled on 06/06/2017 1000**

Variable ID: 17F0528-01

EPA 525.2 - Semivolatiles by GCMS

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Benzo(a)pyrene	ND (S6)	ug/L	0.02	1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND (S6)	ug/L	0.6	1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	104	%		1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Acenaphthene-d10	76	%		1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Chrysene-d12	80	%		1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Perylene-d12	59	%		1
06/20/17	06/29/17 18:56	1004526	1007197	(EPA 525.2)	Phenanthrene-d10	81	%		1

Rounding on totals after summation.
(c) - indicates calculated results

Semivolatiles by GCMS

Prep Batch: 1004526 Analytical Batch: 1007197 **Analysis Date: 06/29/2017**

201706140297 17F0528-01 LGRS-01: Sonic Shallow Analyzed by: JWC

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Semivolatiles by GCMS by EPA 525.2									
Prep Batch: 1004526 Analytical Batch: 1007197							**Analysis Date: 06/29/2017**		
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			106	%	107	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			106	%	106	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			102	%	102	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			108	%	108	(70-130)		
LCS1	Acenaphthene-d10 (I)			88.1	%	88	(50-150)		
LCS2	Acenaphthene-d10 (I)			77.1	%	77	(50-150)		
MBLK	Acenaphthene-d10 (I)			80.4	%	80	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			80.9	%	81	(50-150)		
LCS1	Benzo(a)pyrene		2	1.91	ug/L	95	(70-130)		
LCS2	Benzo(a)pyrene		2	1.89	ug/L	94	(70-130)	20	1.1
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0220	ug/L	110	(50-150)		
LCS1	Chrysene-d12 (I)			91.1	%	91	(50-150)		
LCS2	Chrysene-d12 (I)			85.9	%	86	(50-150)		
MBLK	Chrysene-d12 (I)			76.4	%	76	(50-150)		
MRL_CHK	Chrysene-d12 (I)			86.2	%	86	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.17	ug/L	109	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.13	ug/L	107	(70-130)	20	1.9
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.295	ug/L	98	(50-150)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.12	ug/L	106	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.03	ug/L	101	(70-130)	20	4.3
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.608	ug/L	101	(50-150)		
LCS1	Perylene-d12 (S)			93.0	%	93	(70-130)		
LCS2	Perylene-d12 (S)			96.0	%	96	(70-130)		
MBLK	Perylene-d12 (S)			72.6	%	73	(70-130)		
MRL_CHK	Perylene-d12 (S)			88.9	%	89	(70-130)		
LCS1	Phenanthrene-d10 (I)			90.3	%	90	(50-150)		
LCS2	Phenanthrene-d10 (I)			80.6	%	81	(50-150)		
MBLK	Phenanthrene-d10 (I)			81.8	%	82	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			82.0	%	82	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Alpha
Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35, Dublin CA 94568
925-828-6226 F) 925-828-6309

Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No ____________ Pg 1 of 1

Report to

ompany:
Todd Groundwater
ttn:
Amber J Ritchie, GIT
ddress:
2490 Mariner Square Loop, Suite 215
Alameda CA 94501
hone/Fax:
510-747.6920 x103; 846.633.9712
mail Address:
aritchie@toddgroundwater.com

Invoice to (if different)

Contact:
Email address:
Address:
Phone/Fax:

Project Information

Project ID:
SCVWD IPR
JD Morgan Park
Project No:
PO Number:
37809

Signature below authorizes work under terms stated on reverse side.

ield Sampler - Printed Name & Signature:
Nicholas Drachenberg

Sample Identification	Sampling		Container					Preservative					Matrix			Total Number of Containers per Sample ID	Analysis Request											Sample Notes or DDW Source Numbers:
	Date	Time	40ml Vial	Poly	Glass	Sleeve	Other	HCl	HNO3	H2SO4	Other	None	Water	Soil	Other		DU - General Physical	Inorganics / general Mineral / Perchlorte / U 200.8	Cr6 218.6 DW	524.2 DDW Volatiles	DDW 504.1 507 508 515.1 525.2 531.1 547 548 549	DU pull - Asbestos DW (sub TEM)	Dioxin 2,3,7,8 TCDD (sub Ceres)	Gross Alpha & Beta (sub FGL)	Radium 226 & 228 (sub FGL)	Strontium 90 / Tritium (sub FGL)	j-flag MDL format	
LGRS-01: Sonic Shallow Morgan Park 5	6/6/17	1000											x			1	x										x	
													x			3		x										
													x			1			x									
													x			4				x								
													x			16					x							
													x			2						x						
													x			2							x					
													x			1								x				
													x			3									x			
													x			3										x		

TAT
Standard
10 days ●
RUSH:
5 days ○
48 hours ○
Other: ____days ○
Lab preapproval required

Temp upon Receipt °C
Ukiah temp:
Dublin temp:
Elk Grove temp:

Relinquished by	Received by	Date	Time
	(S.C)	6/6/17	1200
BS/SC		6/6/17	1630

DDW Write On EDT Transmission? ○ Yes ● No
State System Number: ____________
If "Y" please enter the Source Number(s) in the column above

CA Geotracker EDF Report? ○ Yes ○ No
Global ID:
Sampling Company Log Code:
EDF to (Email Address):
Travel and Site Time:
Mileage:
Misc. Supplies:

Alpha Analytical Laboratories Inc. e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

23 June 2017

Todd Groundwater
Amber Ritchie
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: SCVWD IPR JD Morgan Park
Work Order: 17F0524

Enclosed are the results of analyses for samples received by the laboratory on 06/06/17 21:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For David S. Pingatore
Project Manager

Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Todd Groundwater 2490 Mariner Square Loop, Suite 215 Alameda CA, 94501	Project Manager: Amber Ritchie Project: SCVWD IPR JD Morgan Park Project Number: [none]	Reported: 06/23/17 14:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LGRS-02: Sonic Deep	17F0524-01	Water	06/06/17 08:20	06/06/17 21:00

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

LGRS-02: Sonic Deep

17F0524-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals (Drinking Water) by EPA 200 Series Methods										
Calcium	**37**	0.20	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	EPA 200.7	
Iron	**870**	20	100	ug/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	EPA 200.7	
Magnesium	**16**	0.030	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	EPA 200.7	
Mercury	ND	0.060	1.0	ug/L	1	AF73665	06/19/17 11:41	06/20/17 10:10	EPA 245.1	U
Potassium	**1.5**	0.040	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	EPA 200.7	
Sodium	**46**	0.020	1.0	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	EPA 200.7	
Metals by EPA 200 Series Methods										
Chromium, hexavalent	**0.33**	0.050	1.0	ug/L	1	AF73222	06/07/17 12:42	06/07/17 14:11	EPA 218.6	J
Metals by EPA Method 200.8 ICP/MS										
Aluminum	**810**	8.0	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	
Antimony	ND	0.080	6.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Arsenic	**1.2**	0.80	2.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Barium	**50**	0.20	100	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Beryllium	ND	0.080	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Cadmium	ND	0.20	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Chromium	**2.3**	0.32	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Copper	**2.9**	0.20	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Lead	**0.17**	0.080	5.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Manganese	**40**	0.20	20	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	
Nickel	**3.5**	0.24	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Selenium	ND	0.80	5.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Silver	ND	0.20	10	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Thallium	ND	0.20	1.0	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	U
Uranium	**0.12**	0.080	1.0	pCi/l	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J
Zinc	**3.0**	2.0	50	ug/L	4	AF73318	06/09/17 08:32	06/13/17 03:37	EPA 200.8	J

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

LGRS-02: Sonic Deep

17F0524-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Conventional Chemistry Parameters by APHA/EPA Methods										
Aggressive Index	**11.55**		2.00	NU	1	AF73315	06/12/17 15:00	06/21/17 13:44	AWWA	
Bicarbonate	**150**	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	
Carbonate	ND	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	U
Color	**50**	15	25	CU	5	AF73219	06/06/17 18:45	06/06/17 18:45	SM2120B	
Hydroxide	ND	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	U
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L	1	AE74270	06/07/17 09:30	06/07/17 14:15	SM5540C	U
Odor	ND		1.0	T.O.N.	1	AF73219	06/06/17 18:45	06/06/17 18:45	EPA 140.1	U
Perchlorate	ND	0.90	4.0	ug/L	1	AF73377	06/12/17 12:36	06/12/17 12:36	EPA 314.0	U
pH	**7.48**	1.68	1.68	pH Units	1	AF73454	06/07/17 16:00	06/07/17 17:00	SM4500-H+ B	T-14
Specific Conductance (EC)	**530**	1.0	20	umhos/cm	1	AF73454	06/07/17 16:00	06/07/17 17:00	SM2510B	
Total Dissolved Solids	**310**	5.0	10	mg/L	1	AF73441	06/13/17 08:09	06/19/17 11:01	SM2540C	
Turbidity	**36**	0.050	0.10	NTU	1	AF73221	06/06/17 18:30	06/06/17 18:30	SM2130B	
Total Alkalinity as CaCO3	**120**	1.0	5.0	mg/L	1	AF73237	06/12/17 08:00	06/12/17 17:00	SM2320B	
Nitrate + Nitrite as N	**0.40**	0.0086	0.40	mg/L	1	AF73437	06/12/17 16:51	06/19/17 09:35	Calculation	
Hardness, Total	**158**	1	5	mg/L	1	AF73315	06/12/17 15:00	06/21/17 16:12	SM2340B	
Miscellaneous Physical/Conventional Chemistry Parameters										
Cyanide (total)	ND	0.0020	0.10	mg/L	1	AF73259	06/08/17 12:00	06/08/17 17:23	10-204-00-1X	U
Anions by EPA Method 300.0										
Chloride	**60**	1.0	5.0	mg/L	10	AF73223	06/07/17 20:41	06/07/17 20:41	EPA 300.0	
Fluoride	**0.11**	0.070	0.10	mg/L	1	AF73223	06/07/17 20:58	06/07/17 20:58	EPA 300.0	
Nitrate as N	**0.40**	0.040	0.40	mg/L	1	AF73223	06/07/17 20:58	06/07/17 20:58	EPA 300.0	
Nitrite as N	ND	0.050	0.40	mg/L	1	AF73223	06/07/17 20:58	06/07/17 20:58	EPA 300.0	U
Sulfate as SO4	**47**	2.0	5.0	mg/L	10	AF73223	06/07/17 20:41	06/07/17 20:41	EPA 300.0	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

LGRS-02: Sonic Deep

17F0524-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by EPA Method 524.2										
Benzene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Carbon tetrachloride	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Chlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,1-Dichloroethane	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,2-Dichloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,1-Dichloroethene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,2-Dichloropropane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Ethylbenzene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Methylene chloride	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Styrene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Tetrachloroethene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Toluene	ND	0.30	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Trichloroethene	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Trichlorofluoromethane	ND	0.50	5.0	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Trichlorotrifluoroethane	ND	0.40	10	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Vinyl chloride	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Xylenes (total)	ND	0.50	0.50	ug/L	1	AF73493	06/13/17 14:00	06/13/17 23:31	EPA 524.2	U
Surrogate: Bromofluorobenzene			*96.2 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/13/17 23:31*	*EPA 524.2*	
Surrogate: Dibromofluoromethane			*79.0 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/13/17 23:31*	*EPA 524.2*	
Surrogate: Toluene-d8			*98.4 %*	*70-130*		*AF73493*	*06/13/17 14:00*	*06/13/17 23:31*	*EPA 524.2*	

LGRS-02: Sonic Deep

17F0524-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chlorinated Pesticides and PCBs by EPA Method 508										
Endrin	ND	0.030	0.10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Heptachlor	ND	0.010	0.010	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Heptachlor epoxide	ND	0.010	0.010	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Hexachlorobenzene	ND	0.010	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Methoxychlor	ND	0.020	10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1016	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1221	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1232	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1242	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1248	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1254	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
PCB-1260	ND	0.030	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Total PCBs	ND	0.30	0.50	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Toxaphene	ND	0.40	1.0	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Chlordane (tech)	ND	0.030	0.10	ug/L	1	AF73368	06/12/17 00:00	06/14/17 00:23	EPA 508	U
Surrogate: Dibutylchlorendate			*77.3 %*	*70-130*		*AF73368*	*06/12/17 00:00*	*06/14/17 00:23*	*EPA 508*	
Nitrogen- and Phosphorus- Pesticides by EPA Method 507										
Alachlor	ND	0.50	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 19:34	EPA 507	U
Atrazine	ND	0.30	0.50	ug/L	1	AF73506	06/14/17 13:23	06/19/17 19:34	EPA 507	U
Molinate	ND	0.20	2.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 19:34	EPA 507	U
Simazine	ND	0.30	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 19:34	EPA 507	U
Thiobencarb	ND	0.20	1.0	ug/L	1	AF73506	06/14/17 13:23	06/19/17 19:34	EPA 507	U
Surrogate: 1,3-Dimethyl-2-nitrobenzene			*90.0 %*	*70-130*		*AF73506*	*06/14/17 13:23*	*06/19/17 19:34*	*EPA 507*	

LGRS-02: Sonic Deep

17F0524-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organic Analytes by EPA Method 504.1										
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L	1	AF73284	06/12/17 07:00	06/13/17 01:49	EPA 504.1	U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L	1	AF73284	06/12/17 07:00	06/13/17 01:49	EPA 504.1	U
Chlorinated Acids by EPA Method 515.1										
Bentazon	ND	0.40	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
2,4-D	ND	0.80	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
Dalapon	ND	6.0	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
Dinoseb	ND	0.80	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
Pentachlorophenol	ND	0.20	0.20	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
Picloram	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 03:56	EPA 515.1	U
Surrogate: DCAA			*97.6 %*	*70-130*		*AF73233*	*06/08/17 07:00*	*06/15/17 03:56*	*EPA 515.1*	
Carbamates by EPA Method 531.1										
Carbofuran	ND	0.90	5.0	ug/L	1	AF73245	06/12/17 07:39	06/13/17 03:17	EPA 531.1	U
Oxamyl	ND	1.0	20	ug/L	1	AF73245	06/12/17 07:39	06/13/17 03:17	EPA 531.1	U
Endothall by EPA Method 548.1										
Endothall	ND	20	45	ug/L	1	AF73435	06/13/17 07:22	06/22/17 18:17	EPA 548.1	U
Glyphosate by EPA Method 547										
Glyphosate	ND	3.0	25	ug/L	1	AF73536	06/15/17 08:31	06/15/17 19:42	EPA 547	U
Diquat by EPA Method 549.2										
Diquat	ND	2.0	4.0	ug/L	1	AF73242	06/08/17 06:37	06/14/17 19:31	EPA 549.2	U

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73315 - Metals Digest											
Blank (AF73315-BLK1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	ND	0.20	1.0	mg/L							U
Iron	ND	20	100	ug/L							U
Magnesium	ND	0.030	1.0	mg/L							U
Potassium	ND	0.040	1.0	mg/L							U
Sodium	0.0682	0.020	1.0	mg/L							J
LCS (AF73315-BS1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	6.86	0.20	1.0	mg/L	8.00		85.7	85-115			
Iron	1730	20	100	ug/L	2000		86.6	85-115			
Magnesium	7.08	0.030	1.0	mg/L	8.00		88.5	85-115			
Potassium	7.21	0.040	1.0	mg/L	8.00		90.1	85-115			
Sodium	6.87	0.020	1.0	mg/L	8.00		85.9	85-115			
Duplicate (AF73315-DUP1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	2.11	0.20	1.0	mg/L		2.09			0.730	20	
Iron	ND	20	100	ug/L		ND				20	U
Magnesium	0.684	0.030	1.0	mg/L		0.685			0.255	20	J
Potassium	0.292	0.040	1.0	mg/L		0.273			6.59	20	J
Sodium	162	0.020	1.0	mg/L		165			2.04	20	
Matrix Spike (AF73315-MS1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	9.39	0.20	1.0	mg/L	8.00	2.09	91.2	70-130			
Iron	1740	20	100	ug/L	2000	ND	86.8	70-130			
Magnesium	7.70	0.030	1.0	mg/L	8.00	0.685	87.7	70-130			
Potassium	7.80	0.040	1.0	mg/L	8.00	0.273	94.1	70-130			
Sodium	167	0.020	1.0	mg/L	8.00	165	21.5	70-130			QM-4X
Matrix Spike (AF73315-MS2)		**Source: 17F0949-08**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	279	0.20	1.0	mg/L	8.00	280	NR	70-130			QM-4X
Iron	2250	20	100	ug/L	2000	507	87.2	70-130			
Magnesium	192	0.030	1.0	mg/L	8.00	192	3.43	70-130			QM-4X
Potassium	12.4	0.040	1.0	mg/L	8.00	4.96	93.3	70-130			

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73315 - Metals Digest											
Matrix Spike Dup (AF73315-MSD1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Calcium	9.01	0.20	1.0	mg/L	8.00	2.09	86.5	70-130	4.15	20	
Iron	1750	20	100	ug/L	2000	ND	87.5	70-130	0.832	20	
Magnesium	7.69	0.030	1.0	mg/L	8.00	0.685	87.6	70-130	0.0968	20	
Potassium	7.82	0.040	1.0	mg/L	8.00	0.273	94.3	70-130	0.226	20	
Sodium	170	0.020	1.0	mg/L	8.00	165	60.9	70-130	1.87	20	QM-4X
Batch AF73665 - EPA 245.1 Hg Water											
Blank (AF73665-BLK1)					Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	ND	0.060	1.0	ug/L							U
LCS (AF73665-BS1)					Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	2.52	0.060	1.0	ug/L	2.50		101	85-115			
Duplicate (AF73665-DUP1)		**Source: 17F0524-01**			Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	ND	0.060	1.0	ug/L		ND				20	U
Matrix Spike (AF73665-MS1)		**Source: 17F0524-01**			Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	2.25	0.060	1.0	ug/L	2.50	ND	90.0	70-130			
Matrix Spike (AF73665-MS2)		**Source: 17F0782-01**			Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	2.31	0.060	1.0	ug/L	2.50	ND	92.4	70-130			
Matrix Spike Dup (AF73665-MSD1)		**Source: 17F0524-01**			Prepared: 06/19/17 Analyzed: 06/20/17						
Mercury	2.27	0.060	1.0	ug/L	2.50	ND	90.8	70-130	0.885	20	

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73222 - General Preparation											
Blank (AF73222-BLK1)					Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L							U
LCS (AF73222-BS1)					Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.2	0.050	1.0	ug/L	10.0		102	90-110			
Duplicate (AF73222-DUP1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	0.324	0.050	1.0	ug/L		0.328			1.23	20	J
Matrix Spike (AF73222-MS1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.2	0.050	1.0	ug/L	10.0	0.328	98.7	90-110			
Matrix Spike Dup (AF73222-MSD1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/07/17						
Chromium, hexavalent	10.3	0.050	1.0	ug/L	10.0	0.328	99.5	90-110	0.742	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73318 - EPA 200.8

Blank (AF73318-BLK1) Prepared: 06/09/17 Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	ND	2.0	50	ug/L							U
Antimony	0.0315	0.020	6.0	ug/L							J
Arsenic	ND	0.20	2.0	ug/L							U
Barium	ND	0.050	100	ug/L							U
Cadmium	ND	0.050	1.0	ug/L							U
Chromium	ND	0.080	10	ug/L							U
Copper	ND	0.050	50	ug/L							U
Lead	ND	0.020	5.0	ug/L							U
Manganese	ND	0.050	20	ug/L							U
Nickel	ND	0.060	10	ug/L							U
Selenium	ND	0.20	5.0	ug/L							U
Silver	ND	0.050	10	ug/L							U
Uranium	ND	0.020	1.0	pCi/l							U
Zinc	ND	0.50	50	ug/L							U

LCS (AF73318-BS1) Prepared: 06/09/17 Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	575	2.0	50	ug/L	520		111	85-115			
Antimony	21.1	0.020	6.0	ug/L	20.0		106	85-115			
Arsenic	21.0	0.20	2.0	ug/L	20.0		105	85-115			
Barium	19.8	0.050	100	ug/L	20.0		99.2	85-115			J
Beryllium	21.9	0.020	1.0	ug/L	20.0		109	85-115			
Cadmium	19.8	0.050	1.0	ug/L	20.0		99.2	85-115			
Chromium	19.7	0.080	10	ug/L	20.0		98.5	85-115			
Copper	20.1	0.050	50	ug/L	20.0		101	85-115			J
Lead	21.5	0.020	5.0	ug/L	20.0		108	85-115			
Manganese	20.4	0.050	20	ug/L	20.0		102	85-115			
Nickel	19.9	0.060	10	ug/L	20.0		99.7	85-115			
Selenium	21.3	0.20	5.0	ug/L	20.0		107	85-115			
Silver	20.0	0.050	10	ug/L	20.0		100	85-115			
Thallium	21.5	0.050	1.0	ug/L	20.0		108	85-115			
Uranium	13.6	0.020	1.0	pCi/l	13.4		101	85-115			
Zinc	105	0.50	50	ug/L	100		105	85-115			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73318 - EPA 200.8

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (AF73318-DUP1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	2.89	2.0	50	ug/L		3.12			7.39	20	J
Antimony	0.240	0.020	6.0	ug/L		0.234			2.47	20	J
Arsenic	0.673	0.20	2.0	ug/L		0.661			1.68	20	J
Barium	2.66	0.050	100	ug/L		2.65			0.312	20	J
Beryllium	ND	0.020	1.0	ug/L		ND				20	U
Cadmium	ND	0.050	1.0	ug/L		ND				20	U
Chromium	2.66	0.080	10	ug/L		2.64			0.522	20	J
Copper	867	0.050	50	ug/L		877			1.18	20	
Lead	2.90	0.020	5.0	ug/L		2.78			3.95	20	J
Manganese	0.244	0.050	20	ug/L		0.248			1.49	20	J
Nickel	3.65	0.060	10	ug/L		3.58			1.82	20	J
Selenium	1.10	0.20	5.0	ug/L		1.03			6.49	20	J
Silver	0.121	0.050	10	ug/L		0.101			18.5	20	J
Thallium	ND	0.050	1.0	ug/L		ND				20	U
Uranium	0.731	0.020	1.0	pCi/l		0.715			2.29	20	J
Zinc	121	0.50	50	ug/L		122			1.20	20	
MRL Check (AF73318-MRL1)					Prepared: 06/09/17 Analyzed: 06/12/17						
Lead	0.460	0.020	5.0	ug/L	0.400		115	0-200			J
Thallium	0.175	0.050	1.0	ug/L	0.160		110	0-200			J
Matrix Spike (AF73318-MS1)		**Source: 17F0534-01**			Prepared: 06/09/17 Analyzed: 06/13/17						
Aluminum	569	2.0	50	ug/L	520	3.12	109	70-130			
Antimony	22.8	0.020	6.0	ug/L	20.0	0.234	113	70-130			
Arsenic	22.6	0.20	2.0	ug/L	20.0	0.661	109	70-130			
Barium	22.2	0.050	100	ug/L	20.0	2.65	97.8	70-130			J
Beryllium	22.5	0.020	1.0	ug/L	20.0	ND	112	70-130			
Cadmium	19.6	0.050	1.0	ug/L	20.0	ND	98.2	70-130			
Chromium	22.2	0.080	10	ug/L	20.0	2.64	97.6	70-130			
Copper	863	0.050	50	ug/L	20.0	877	NR	70-130			QM-4X
Lead	23.7	0.020	5.0	ug/L	20.0	2.78	105	70-130			
Manganese	19.7	0.050	20	ug/L	20.0	0.248	97.4	70-130			J
Nickel	22.6	0.060	10	ug/L	20.0	3.58	95.2	70-130			
Selenium	21.4	0.20	5.0	ug/L	20.0	1.03	102	70-130			
Silver	19.7	0.050	10	ug/L	20.0	0.101	97.9	70-130			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73318 - EPA 200.8

Matrix Spike (AF73318-MS1) Source: 17F0534-01 Prepared: 06/09/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Thallium	20.6	0.050	1.0	ug/L	20.0	ND	103	70-130			
Uranium	15.5	0.020	1.0	pCi/l	13.4	0.715	111	70-130			
Zinc	210	0.50	50	ug/L	100	122	88.5	70-130			

Matrix Spike (AF73318-MS2) Source: 17F0898-01 Prepared: 06/09/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	970	2.0	50	ug/L	520	374	114	70-130			
Antimony	21.6	0.020	6.0	ug/L	20.0	0.763	104	70-130			
Arsenic	21.0	0.20	2.0	ug/L	20.0	0.440	103	70-130			
Barium	32.6	0.050	100	ug/L	20.0	12.6	100	70-130			J
Beryllium	22.8	0.020	1.0	ug/L	20.0	0.0233	114	70-130			
Cadmium	19.7	0.050	1.0	ug/L	20.0	0.237	97.5	70-130			
Chromium	22.3	0.080	10	ug/L	20.0	1.46	104	70-130			
Copper	36.8	0.050	50	ug/L	20.0	16.8	100	70-130			J
Lead	24.6	0.020	5.0	ug/L	20.0	4.54	100	70-130			
Manganese	41.0	0.050	20	ug/L	20.0	20.2	104	70-130			
Nickel	22.9	0.060	10	ug/L	20.0	2.20	103	70-130			
Selenium	20.3	0.20	5.0	ug/L	20.0	ND	101	70-130			
Silver	20.0	0.050	10	ug/L	20.0	0.158	99.1	70-130			
Thallium	19.8	0.050	1.0	ug/L	20.0	ND	99.0	70-130			
Uranium	12.8	0.020	1.0	pCi/l	13.4	0.0347	95.5	70-130			
Zinc	203	0.50	50	ug/L	100	107	95.6	70-130			

Matrix Spike Dup (AF73318-MSD1) Source: 17F0534-01 Prepared: 06/09/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	560	2.0	50	ug/L	520	3.12	107	70-130	1.58	20	
Antimony	23.0	0.020	6.0	ug/L	20.0	0.234	114	70-130	0.897	20	
Arsenic	21.8	0.20	2.0	ug/L	20.0	0.661	106	70-130	3.33	20	
Barium	22.0	0.050	100	ug/L	20.0	2.65	96.7	70-130	0.918	20	J
Beryllium	23.1	0.020	1.0	ug/L	20.0	ND	116	70-130	2.86	20	
Cadmium	19.7	0.050	1.0	ug/L	20.0	ND	98.3	70-130	0.111	20	
Chromium	22.5	0.080	10	ug/L	20.0	2.64	99.0	70-130	1.29	20	
Copper	869	0.050	50	ug/L	20.0	877	NR	70-130	0.699	20	QM-4X
Lead	22.4	0.020	5.0	ug/L	20.0	2.78	97.9	70-130	5.88	20	
Manganese	20.0	0.050	20	ug/L	20.0	0.248	99.0	70-130	1.61	20	
Nickel	22.6	0.060	10	ug/L	20.0	3.58	95.2	70-130	0.0365	20	
Selenium	21.4	0.20	5.0	ug/L	20.0	1.03	102	70-130	0.0287	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73318 - EPA 200.8

Matrix Spike Dup (AF73318-MSD1) **Source: 17F0534-01** Prepared: 06/09/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Silver	19.8	0.050	10	ug/L	20.0	0.101	98.4	70-130	0.433	20	
Thallium	19.4	0.050	1.0	ug/L	20.0	ND	97.2	70-130	5.72	20	
Uranium	14.8	0.020	1.0	pCi/l	13.4	0.715	105	70-130	5.14	20	
Zinc	212	0.50	50	ug/L	100	122	89.7	70-130	0.581	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AE74270 - General Preparation											
Blank (AE74270-BLK1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L							U
LCS (AE74270-BS1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.181	0.030	0.050	mg/L	0.200		90.5	80-120			
LCS Dup (AE74270-BSD1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.185	0.030	0.050	mg/L	0.200		92.6	80-120	2.22	20	
Duplicate (AE74270-DUP1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L		ND				20	U
Matrix Spike (AE74270-MS1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.169	0.030	0.050	mg/L	0.200	ND	84.4	80-120			
Matrix Spike Dup (AE74270-MSD1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.173	0.030	0.050	mg/L	0.200	ND	86.5	80-120	2.38	20	
Batch AF73221 - General Prep (DU)											
Duplicate (AF73221-DUP1)		**Source: 17F0546-01**			Prepared & Analyzed: 06/06/17						
Turbidity	0.210	0.050	0.10	NTU		0.210			0.00	15	
Duplicate (AF73221-DUP2)		**Source: 17F0596-01**			Prepared & Analyzed: 06/06/17						
Turbidity	0.0500	0.050	0.10	NTU		0.0500			0.00	15	J
Reference (AF73221-SRM1)					Prepared & Analyzed: 06/06/17						
Turbidity	0.170	0.050	0.10	NTU	0.132		129	0-200			

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73237 - General Preparation											
Duplicate (AF73237-DUP1)		**Source: 17F0519-01**			Prepared & Analyzed: 06/12/17						
Carbonate	ND	1.0	5.0	mg/L		ND				20	U
Bicarbonate	348	1.0	5.0	mg/L		354			1.74	20	
Hydroxide	ND	1.0	5.0	mg/L		ND				5	U
Total Alkalinity as CaCO3	285	1.0	5.0	mg/L		290			1.74	20	
Batch AF73315 - Metals Digest											
Blank (AF73315-BLK1)					Prepared: 06/12/17 Analyzed: 06/21/17						
Hardness, Total	ND	1	5	mg/L							U
Duplicate (AF73315-DUP1)		**Source: 17F0534-02**			Prepared: 06/12/17 Analyzed: 06/21/17						
Hardness, Total	8	1	5	mg/L		8			0.385	20	
Batch AF73377 - General Preparation											
Blank (AF73377-BLK1)					Prepared & Analyzed: 06/12/17						
Perchlorate	ND	0.90	4.0	ug/L							U
LCS (AF73377-BS1)					Prepared & Analyzed: 06/12/17						
Perchlorate	25.9	0.90	4.0	ug/L	25.0		103	85-115			
Duplicate (AF73377-DUP1)		**Source: 17F0415-01**			Prepared & Analyzed: 06/12/17						
Perchlorate	ND	0.90	4.0	ug/L		ND				15	U
Matrix Spike (AF73377-MS1)		**Source: 17F0415-01**			Prepared & Analyzed: 06/12/17						
Perchlorate	24.9	0.90	4.0	ug/L	25.0	ND	99.5	70-130			

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Batch AF73377 - General Preparation

Matrix Spike Dup (AF73377-MSD1) **Source: 17F0415-01** Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Perchlorate	25.0	0.90	4.0	ug/L	25.0	ND	100	70-130	0.517	15	

Batch AF73441 - General Preparation

Blank (AF73441-BLK1) Prepared: 06/13/17 Analyzed: 06/19/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	ND	5.0	10	mg/L							U

Duplicate (AF73441-DUP1) **Source: 17F0528-01** Prepared: 06/13/17 Analyzed: 06/19/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	239	5.0	10	mg/L		234			2.11	15	

Duplicate (AF73441-DUP2) **Source: 17F0952-06** Prepared: 06/13/17 Analyzed: 06/19/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	277	5.0	10	mg/L		291			4.70	15	

Batch AF73454 - General Preparation

Duplicate (AF73454-DUP1) **Source: 17F0498-02** Prepared & Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
pH	8.11	1.68	1.68	pH Units		8.11			0.00	20	
Specific Conductance (EC)	369	1.0	20	umhos/cm		368			0.271	5	

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

Batch AF73259 - General Preparation

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (AF73259-BLK1)					Prepared & Analyzed: 06/08/17						
Cyanide (total)	ND	0.0020	0.10	mg/L							U
LCS (AF73259-BS1)					Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.227	0.0020	0.10	mg/L	0.200		114	85-115			
Duplicate (AF73259-DUP1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	ND	0.0020	0.10	mg/L		ND				25	U
Matrix Spike (AF73259-MS1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.0873	0.0020	0.10	mg/L	0.200	ND	43.7	85-115			QM-05, J
Matrix Spike (AF73259-MS2)		**Source: 17F0570-01**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.227	0.0020	0.10	mg/L	0.200	0.0164	106	85-115			
Matrix Spike Dup (AF73259-MSD1)		**Source: 17F0311-04**			Prepared & Analyzed: 06/08/17						
Cyanide (total)	0.0813	0.0020	0.10	mg/L	0.200	ND	40.6	85-115	7.17	25	QM-05, J

Anions by EPA Method 300.0 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73223 - General Preparation											
Blank (AF73223-BLK1)					Prepared & Analyzed: 06/07/17						
Nitrate as N	ND	0.040	0.40	mg/L							U
Fluoride	ND	0.070	0.10	mg/L							U
Nitrite as N	ND	0.050	0.40	mg/L							U
Chloride	ND	0.10	0.50	mg/L							U
Sulfate as SO4	ND	0.20	0.50	mg/L							U
LCS (AF73223-BS1)					Prepared & Analyzed: 06/07/17						
Chloride	11.1	0.10	0.50	mg/L	11.1		99.6	90-110			
Nitrite as N	5.70	0.050	0.40	mg/L	5.56		103	90-110			
Sulfate as SO4	22.1	0.20	0.50	mg/L	22.2		99.3	90-110			
Nitrate as N	5.63	0.040	0.40	mg/L	5.56		101	90-110			
Fluoride	5.60	0.070	0.10	mg/L	5.56		101	90-110			
Duplicate (AF73223-DUP1)		**Source: 17F0500-02**			Prepared & Analyzed: 06/08/17						
Sulfate as SO4	11.0	0.20	0.50	mg/L		11.0			0.199	20	
Chloride	17.4	0.10	0.50	mg/L		17.5			0.240	20	
Fluoride	0.155	0.070	0.10	mg/L		0.152			1.95	20	
Nitrite as N	ND	0.050	0.40	mg/L		ND				20	U
Nitrate as N	ND	0.040	0.40	mg/L		ND				20	U
Matrix Spike (AF73223-MS1)		**Source: 17F0500-02**			Prepared & Analyzed: 06/08/17						
Fluoride	5.47	0.35	0.50	mg/L	5.56	ND	98.4	80-120			
Nitrate as N	5.35	0.20	2.0	mg/L	5.56	ND	96.4	80-120			
Sulfate as SO4	30.4	1.0	2.5	mg/L	22.2	11.0	87.1	80-120			
Nitrite as N	5.23	0.25	2.0	mg/L	5.56	ND	94.2	80-120			
Chloride	27.4	0.50	2.5	mg/L	11.1	17.5	89.1	80-120			
Matrix Spike (AF73223-MS2)		**Source: 17F0528-01**			Prepared & Analyzed: 06/08/17						
Sulfate as SO4	69.8	1.0	2.5	mg/L	22.2	48.0	98.2	80-120			
Nitrate as N	5.79	0.20	2.0	mg/L	5.56	0.370	97.5	80-120			
Nitrite as N	5.36	0.25	2.0	mg/L	5.56	ND	96.4	80-120			
Fluoride	5.36	0.35	0.50	mg/L	5.56	ND	96.5	80-120			
Chloride	25.6	0.50	2.5	mg/L	11.1	15.3	93.1	80-120			

Anions by EPA Method 300.0 - Quality Control

Batch AF73223 - General Preparation

Matrix Spike Dup (AF73223-MSD1) **Source: 17F0500-02** Prepared & Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fluoride	5.48	0.35	0.50	mg/L	5.56	ND	98.7	80-120	0.304	20	
Chloride	27.4	0.50	2.5	mg/L	11.1	17.5	89.0	80-120	0.0203	20	
Sulfate as SO4	30.5	1.0	2.5	mg/L	22.2	11.0	87.4	80-120	0.219	20	
Nitrite as N	5.28	0.25	2.0	mg/L	5.56	ND	95.1	80-120	0.951	20	
Nitrate as N	5.35	0.20	2.0	mg/L	5.56	ND	96.4	80-120	0.00	20	

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

Blank (AF73493-BLK1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	ND	0.30	0.50	ug/L							U
Carbon tetrachloride	ND	0.30	0.50	ug/L							U
Chlorobenzene	ND	0.50	0.50	ug/L							U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,1-Dichloroethane	ND	0.40	0.50	ug/L							U
1,2-Dichloroethane	ND	0.50	0.50	ug/L							U
1,1-Dichloroethene	ND	0.30	0.50	ug/L							U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
1,2-Dichloropropane	ND	0.50	0.50	ug/L							U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L							U
Ethylbenzene	ND	0.50	0.50	ug/L							U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L							U
Methylene chloride	ND	0.40	0.50	ug/L							U
Styrene	ND	0.50	0.50	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L							U
Tetrachloroethene	ND	0.50	0.50	ug/L							U
Toluene	ND	0.30	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L							U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L							U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L							U
Trichloroethene	ND	0.50	0.50	ug/L							U
Trichlorofluoromethane	ND	0.50	5.0	ug/L							U
Trichlorotrifluoroethane	ND	0.40	10	ug/L							U
Vinyl chloride	ND	0.50	0.50	ug/L							U
Xylenes (total)	ND	0.50	0.50	ug/L							U
Surrogate: Bromofluorobenzene	*24.9*			*ug/L*	*25.0*		*99.6*	*70-130*			
Surrogate: Dibromofluoromethane	*20.2*			*ug/L*	*25.0*		*80.7*	*70-130*			
Surrogate: Toluene-d8	*22.5*			*ug/L*	*25.0*		*89.9*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

LCS (AF73493-BS1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.74	0.30	0.50	ug/L	5.00		94.8	70-130			
Carbon tetrachloride	5.15	0.30	0.50	ug/L	5.00		103	70-130			
Chlorobenzene	5.10	0.50	0.50	ug/L	5.00		102	70-130			
1,2-Dichlorobenzene	5.34	0.50	0.50	ug/L	5.00		107	70-130			
1,4-Dichlorobenzene	4.89	0.50	0.50	ug/L	5.00		97.8	70-130			
1,1-Dichloroethane	4.75	0.40	0.50	ug/L	5.00		95.0	70-130			
1,2-Dichloroethane	4.73	0.50	0.50	ug/L	5.00		94.6	70-130			
1,1-Dichloroethene	4.24	0.30	0.50	ug/L	5.00		84.8	70-130			
cis-1,2-Dichloroethene	5.06	0.40	0.50	ug/L	5.00		101	70-130			
trans-1,2-Dichloroethene	4.68	0.40	0.50	ug/L	5.00		93.6	70-130			
1,2-Dichloropropane	4.70	0.50	0.50	ug/L	5.00		94.0	70-130			
Ethylbenzene	5.17	0.50	0.50	ug/L	5.00		103	70-130			
Methyl tert-butyl ether	5.25	0.50	3.0	ug/L	5.00		105	70-130			
Methylene chloride	5.06	0.40	0.50	ug/L	5.00		101	70-130			
Styrene	5.26	0.50	0.50	ug/L	5.00		105	70-130			
1,1,2,2-Tetrachloroethane	5.39	0.50	0.50	ug/L	5.00		108	70-130			
Tetrachloroethene	4.98	0.50	0.50	ug/L	5.00		99.6	70-130			
Toluene	5.04	0.30	0.50	ug/L	5.00		101	70-130			
1,2,4-Trichlorobenzene	5.96	0.40	0.50	ug/L	5.00		119	70-130			
1,1,1-Trichloroethane	4.54	0.40	0.50	ug/L	5.00		90.8	70-130			
1,1,2-Trichloroethane	5.01	0.50	0.50	ug/L	5.00		100	70-130			
Trichloroethene	4.75	0.50	0.50	ug/L	5.00		95.0	70-130			
Trichlorofluoromethane	4.87	0.50	5.0	ug/L	5.00		97.4	70-130			J
Trichlorotrifluoroethane	5.08	0.40	10	ug/L	5.00		102	70-130			J
Vinyl chloride	4.79	0.50	0.50	ug/L	5.00		95.8	70-130			
Xylenes (total)	15.4	0.50	0.50	ug/L	15.0		103	70-130			
Surrogate: Bromofluorobenzene	*25.7*			*ug/L*	*25.0*		*103*	*70-130*			
Surrogate: Dibromofluoromethane	*20.7*			*ug/L*	*25.0*		*82.8*	*70-130*			
Surrogate: Toluene-d8	*22.6*			*ug/L*	*25.0*		*90.3*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

LCS Dup (AF73493-BSD1) Prepared & Analyzed: 06/12/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.92	0.30	0.50	ug/L	5.00		98.4	70-130	3.73	30	
Carbon tetrachloride	5.35	0.30	0.50	ug/L	5.00		107	70-130	3.81	30	
Chlorobenzene	5.38	0.50	0.50	ug/L	5.00		108	70-130	5.34	30	
1,2-Dichlorobenzene	5.54	0.50	0.50	ug/L	5.00		111	70-130	3.68	30	
1,4-Dichlorobenzene	5.31	0.50	0.50	ug/L	5.00		106	70-130	8.24	30	
1,1-Dichloroethane	4.98	0.40	0.50	ug/L	5.00		99.6	70-130	4.73	30	
1,2-Dichloroethane	4.90	0.50	0.50	ug/L	5.00		98.0	70-130	3.53	30	
1,1-Dichloroethene	4.39	0.30	0.50	ug/L	5.00		87.8	70-130	3.48	30	
cis-1,2-Dichloroethene	5.18	0.40	0.50	ug/L	5.00		104	70-130	2.34	30	
trans-1,2-Dichloroethene	4.81	0.40	0.50	ug/L	5.00		96.2	70-130	2.74	30	
1,2-Dichloropropane	5.02	0.50	0.50	ug/L	5.00		100	70-130	6.58	30	
Ethylbenzene	5.41	0.50	0.50	ug/L	5.00		108	70-130	4.54	30	
Methyl tert-butyl ether	5.41	0.50	3.0	ug/L	5.00		108	70-130	3.00	30	
Methylene chloride	5.10	0.40	0.50	ug/L	5.00		102	70-130	0.787	30	
Styrene	5.56	0.50	0.50	ug/L	5.00		111	70-130	5.55	30	
1,1,2,2-Tetrachloroethane	5.64	0.50	0.50	ug/L	5.00		113	70-130	4.53	30	
Tetrachloroethene	5.22	0.50	0.50	ug/L	5.00		104	70-130	4.71	30	
Toluene	5.27	0.30	0.50	ug/L	5.00		105	70-130	4.46	30	
1,2,4-Trichlorobenzene	6.31	0.40	0.50	ug/L	5.00		126	70-130	5.70	30	
1,1,1-Trichloroethane	4.84	0.40	0.50	ug/L	5.00		96.8	70-130	6.40	30	
1,1,2-Trichloroethane	5.35	0.50	0.50	ug/L	5.00		107	70-130	6.56	30	
Trichloroethene	4.92	0.50	0.50	ug/L	5.00		98.4	70-130	3.52	30	
Trichlorofluoromethane	4.89	0.50	5.0	ug/L	5.00		97.8	70-130	0.410	30	J
Trichlorotrifluoroethane	5.08	0.40	10	ug/L	5.00		102	70-130	0.00	30	J
Vinyl chloride	4.90	0.50	0.50	ug/L	5.00		98.0	70-130	2.27	30	
Xylenes (total)	16.0	0.50	0.50	ug/L	15.0		107	70-130	3.75	30	
Surrogate: Bromofluorobenzene	*26.1*			*ug/L*	*25.0*		*105*	*70-130*			
Surrogate: Dibromofluoromethane	*21.3*			*ug/L*	*25.0*		*85.3*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*91.8*	*70-130*			

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda CA, 94501

Project Manager: Amber Ritchie
Project: SCVWD IPR JD Morgan Park
Project Number: [none]

Reported:
06/23/17 14:35

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

Matrix Spike (AF73493-MS1) **Source: 17F0658-01** Prepared: 06/13/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.74	0.30	0.50	ug/L	5.00	ND	94.8	70-130			
Carbon tetrachloride	4.72	0.30	0.50	ug/L	5.00	ND	94.4	70-130			
Chlorobenzene	5.28	0.50	0.50	ug/L	5.00	ND	106	70-130			
1,2-Dichlorobenzene	5.44	0.50	0.50	ug/L	5.00	ND	109	70-130			
1,4-Dichlorobenzene	5.15	0.50	0.50	ug/L	5.00	ND	103	70-130			
1,1-Dichloroethane	5.16	0.40	0.50	ug/L	5.00	ND	103	70-130			
1,2-Dichloroethane	4.48	0.50	0.50	ug/L	5.00	ND	89.6	70-130			
1,1-Dichloroethene	5.18	0.30	0.50	ug/L	5.00	ND	104	70-130			
cis-1,2-Dichloroethene	5.24	0.40	0.50	ug/L	5.00	ND	105	70-130			
trans-1,2-Dichloroethene	5.04	0.40	0.50	ug/L	5.00	ND	101	70-130			
1,2-Dichloropropane	4.56	0.50	0.50	ug/L	5.00	ND	91.2	70-130			
Ethylbenzene	5.42	0.50	0.50	ug/L	5.00	ND	108	70-130			
Methyl tert-butyl ether	4.89	0.50	3.0	ug/L	5.00	ND	97.8	70-130			
Methylene chloride	4.91	0.40	0.50	ug/L	5.00	ND	98.2	70-130			
Styrene	5.18	0.50	0.50	ug/L	5.00	ND	104	70-130			
1,1,2,2-Tetrachloroethane	5.13	0.50	0.50	ug/L	5.00	ND	103	70-130			
Tetrachloroethene	5.63	0.50	0.50	ug/L	5.00	ND	113	70-130			
Toluene	5.43	0.30	0.50	ug/L	5.00	ND	109	70-130			
1,2,4-Trichlorobenzene	6.00	0.40	0.50	ug/L	5.00	ND	120	70-130			
1,1,1-Trichloroethane	4.30	0.40	0.50	ug/L	5.00	ND	86.0	70-130			
1,1,2-Trichloroethane	5.08	0.50	0.50	ug/L	5.00	ND	102	70-130			
Trichloroethene	4.92	0.50	0.50	ug/L	5.00	ND	98.4	70-130			
Trichlorofluoromethane	5.94	0.50	5.0	ug/L	5.00	ND	119	70-130			
Trichlorotrifluoroethane	6.20	0.40	10	ug/L	5.00	ND	124	70-130			J
Vinyl chloride	4.85	0.50	0.50	ug/L	5.00	ND	97.0	70-130			
Xylenes (total)	16.1	0.50	0.50	ug/L	15.0	ND	107	70-130			
Surrogate: Bromofluorobenzene	*23.2*			*ug/L*	*25.0*		*92.8*	*70-130*			
Surrogate: Dibromofluoromethane	*21.2*			*ug/L*	*25.0*		*84.6*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*91.9*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73493 - VOAs in Water GCMS

Matrix Spike Dup (AF73493-MSD1) **Source: 17F0658-01** Prepared: 06/13/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.60	0.30	0.50	ug/L	5.00	ND	92.0	70-130	3.00	30	
Carbon tetrachloride	4.80	0.30	0.50	ug/L	5.00	ND	96.0	70-130	1.68	30	
Chlorobenzene	5.02	0.50	0.50	ug/L	5.00	ND	100	70-130	5.05	30	
1,2-Dichlorobenzene	5.32	0.50	0.50	ug/L	5.00	ND	106	70-130	2.23	30	
1,4-Dichlorobenzene	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130	3.16	30	
1,1-Dichloroethane	4.98	0.40	0.50	ug/L	5.00	ND	99.6	70-130	3.55	30	
1,2-Dichloroethane	4.37	0.50	0.50	ug/L	5.00	ND	87.4	70-130	2.49	30	
1,1-Dichloroethene	4.95	0.30	0.50	ug/L	5.00	ND	99.0	70-130	4.54	30	
cis-1,2-Dichloroethene	5.09	0.40	0.50	ug/L	5.00	ND	102	70-130	2.90	30	
trans-1,2-Dichloroethene	4.90	0.40	0.50	ug/L	5.00	ND	98.0	70-130	2.82	30	
1,2-Dichloropropane	4.30	0.50	0.50	ug/L	5.00	ND	86.0	70-130	5.87	30	
Ethylbenzene	5.20	0.50	0.50	ug/L	5.00	ND	104	70-130	4.14	30	
Methyl tert-butyl ether	4.82	0.50	3.0	ug/L	5.00	ND	96.4	70-130	1.44	30	
Methylene chloride	4.76	0.40	0.50	ug/L	5.00	ND	95.2	70-130	3.10	30	
Styrene	4.93	0.50	0.50	ug/L	5.00	ND	98.6	70-130	4.95	30	
1,1,2,2-Tetrachloroethane	5.03	0.50	0.50	ug/L	5.00	ND	101	70-130	1.97	30	
Tetrachloroethene	5.50	0.50	0.50	ug/L	5.00	ND	110	70-130	2.34	30	
Toluene	5.15	0.30	0.50	ug/L	5.00	ND	103	70-130	5.29	30	
1,2,4-Trichlorobenzene	5.82	0.40	0.50	ug/L	5.00	ND	116	70-130	3.05	30	
1,1,1-Trichloroethane	4.22	0.40	0.50	ug/L	5.00	ND	84.4	70-130	1.88	30	
1,1,2-Trichloroethane	4.72	0.50	0.50	ug/L	5.00	ND	94.4	70-130	7.35	30	
Trichloroethene	4.69	0.50	0.50	ug/L	5.00	ND	93.8	70-130	4.79	30	
Trichlorofluoromethane	5.79	0.50	5.0	ug/L	5.00	ND	116	70-130	2.56	30	
Trichlorotrifluoroethane	6.08	0.40	10	ug/L	5.00	ND	122	70-130	1.95	30	J
Vinyl chloride	4.82	0.50	0.50	ug/L	5.00	ND	96.4	70-130	0.620	30	
Xylenes (total)	15.5	0.50	0.50	ug/L	15.0	ND	103	70-130	3.79	30	
Surrogate: Bromofluorobenzene	*23.2*			*ug/L*	*25.0*		*92.7*	*70-130*			
Surrogate: Dibromofluoromethane	*21.4*			*ug/L*	*25.0*		*85.5*	*70-130*			
Surrogate: Toluene-d8	*23.0*			*ug/L*	*25.0*		*92.1*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73368 - SVOAs in Water GC											
Blank (AF73368-BLK1)					Prepared: 06/12/17 Analyzed: 06/13/17						
Endrin	ND	0.030	0.10	ug/L							U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L							U
Heptachlor	ND	0.010	0.010	ug/L							U
Heptachlor epoxide	ND	0.010	0.010	ug/L							U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L							U
Hexachlorobenzene	ND	0.010	0.50	ug/L							U
Methoxychlor	ND	0.020	10	ug/L							U
PCB-1016	ND	0.030	0.50	ug/L							U
PCB-1221	ND	0.030	0.50	ug/L							U
PCB-1232	ND	0.030	0.50	ug/L							U
PCB-1242	ND	0.030	0.50	ug/L							U
PCB-1248	ND	0.030	0.50	ug/L							U
PCB-1254	ND	0.030	0.50	ug/L							U
PCB-1260	ND	0.030	0.50	ug/L							U
Total PCBs	ND	0.30	0.50	ug/L							U
Toxaphene	ND	0.40	1.0	ug/L							U
Chlordane (tech)	ND	0.030	0.10	ug/L							U
Surrogate: Dibutylchlorendate	*0.796*			*ug/L*	*0.978*		*81.4*	*70-130*			
LCS (AF73368-BS1)					Prepared: 06/12/17 Analyzed: 06/13/17						
Endrin	0.227	0.030	0.10	ug/L	0.280		81.1	70-130			
HCH-gamma (Lindane)	0.214	0.010	0.20	ug/L	0.280		76.5	70-130			
Heptachlor	0.213	0.010	0.010	ug/L	0.280		76.2	70-130			
Heptachlor epoxide	0.214	0.010	0.010	ug/L	0.280		76.5	70-130			
Hexachlorobenzene	0.208	0.010	0.50	ug/L	0.280		74.4	70-130			J
Hexachlorocyclopentadiene	0.161	0.040	1.0	ug/L	0.560		28.7	15-90			J
Methoxychlor	0.227	0.020	10	ug/L	0.280		81.1	70-130			J
Surrogate: Dibutylchlorendate	*0.828*			*ug/L*	*0.978*		*84.7*	*70-130*			

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73368 - SVOAs in Water GC

LCS Dup (AF73368-BSD1) Prepared: 06/12/17 Analyzed: 06/13/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.242	0.030	0.10	ug/L	0.280		86.3	70-130	6.26	25	
HCH-gamma (Lindane)	0.232	0.010	0.20	ug/L	0.280		82.9	70-130	8.02	25	
Heptachlor	0.207	0.010	0.010	ug/L	0.280		74.0	70-130	2.95	25	
Heptachlor epoxide	0.235	0.010	0.010	ug/L	0.280		83.8	70-130	9.08	25	
Hexachlorobenzene	0.218	0.010	0.50	ug/L	0.280		77.9	70-130	4.62	25	J
Hexachlorocyclopentadiene	0.161	0.040	1.0	ug/L	0.560		28.8	15-90	0.331	50	J
Methoxychlor	0.244	0.020	10	ug/L	0.280		87.0	70-130	7.01	25	J
Surrogate: Dibutylchlorendate	*0.850*			*ug/L*	*0.978*		*86.9*	*70-130*			

Matrix Spike (AF73368-MS1) **Source: 17F0892-01** Prepared: 06/12/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.288	0.030	0.10	ug/L	0.280	ND	103	70-130			
HCH-gamma (Lindane)	0.260	0.010	0.20	ug/L	0.280	ND	92.7	70-130			
Heptachlor	0.237	0.010	0.010	ug/L	0.280	ND	84.7	70-130			
Heptachlor epoxide	0.265	0.010	0.010	ug/L	0.280	ND	94.7	70-130			
Hexachlorocyclopentadiene	0.220	0.040	1.0	ug/L	0.560	ND	39.3	15-90			J
Hexachlorobenzene	0.229	0.010	0.50	ug/L	0.280	ND	81.9	70-130			J
Methoxychlor	0.290	0.020	10	ug/L	0.280	ND	104	70-130			J
Surrogate: Dibutylchlorendate	*0.990*			*ug/L*	*0.978*		*101*	*70-130*			

Matrix Spike Dup (AF73368-MSD1) **Source: 17F0892-01** Prepared: 06/12/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.273	0.030	0.10	ug/L	0.280	ND	97.5	70-130	5.28	25	
HCH-gamma (Lindane)	0.246	0.010	0.20	ug/L	0.280	ND	87.9	70-130	5.28	25	
Heptachlor	0.225	0.010	0.010	ug/L	0.280	ND	80.5	70-130	5.11	25	
Heptachlor epoxide	0.255	0.010	0.010	ug/L	0.280	ND	91.1	70-130	3.85	25	
Hexachlorobenzene	0.212	0.010	0.50	ug/L	0.280	ND	75.7	70-130	7.93	25	J
Hexachlorocyclopentadiene	0.192	0.040	1.0	ug/L	0.560	ND	34.3	15-90	13.5	50	J
Methoxychlor	0.285	0.020	10	ug/L	0.280	ND	102	70-130	1.86	25	J
Surrogate: Dibutylchlorendate	*0.968*			*ug/L*	*0.978*		*99.0*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73506 - SVOAs in Water GC											
Blank (AF73506-BLK1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	ND	0.50	1.0	ug/L							U
Atrazine	ND	0.30	0.50	ug/L							U
Molinate	ND	0.20	2.0	ug/L							U
Simazine	ND	0.30	1.0	ug/L							U
Thiobencarb	ND	0.20	1.0	ug/L							U
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.79*			*ug/L*	*2.00*		*89.6*	*70-130*			
LCS (AF73506-BS1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	1.58	0.50	1.0	ug/L	2.00		79.1	70-130			
Atrazine	1.69	0.30	0.50	ug/L	2.00		84.5	70-130			
Molinate	1.73	0.20	2.0	ug/L	2.00		86.7	70-130			J
Simazine	1.59	0.30	1.0	ug/L	2.00		79.4	70-130			
Thiobencarb	1.69	0.20	1.0	ug/L	2.00		84.5	70-130			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.78*			*ug/L*	*2.00*		*89.2*	*70-130*			
LCS Dup (AF73506-BSD1)					Prepared: 06/14/17 Analyzed: 06/19/17						
Alachlor	1.89	0.50	1.0	ug/L	2.00		94.3	70-130	17.5	30	
Atrazine	1.89	0.30	0.50	ug/L	2.00		94.6	70-130	11.3	30	
Molinate	1.82	0.20	2.0	ug/L	2.00		90.9	70-130	4.79	30	J
Simazine	1.90	0.30	1.0	ug/L	2.00		95.1	70-130	18.0	30	
Thiobencarb	1.67	0.20	1.0	ug/L	2.00		83.4	70-130	1.25	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.89*			*ug/L*	*2.00*		*94.4*	*70-130*			
Matrix Spike (AF73506-MS1)		**Source: 17F0413-01**			Prepared: 06/14/17 Analyzed: 06/20/17						
Alachlor	1.68	0.50	1.0	ug/L	2.00	ND	84.0	65-135			
Atrazine	1.81	0.30	0.50	ug/L	2.00	ND	90.4	65-135			
Molinate	1.72	0.20	2.0	ug/L	2.00	ND	86.0	65-135			J
Simazine	1.94	0.30	1.0	ug/L	2.00	ND	97.1	65-135			
Thiobencarb	1.85	0.20	1.0	ug/L	2.00	ND	92.6	65-135			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*2.01*			*ug/L*	*2.00*		*101*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73506 - SVOAs in Water GC

Matrix Spike Dup (AF73506-MSD1) **Source: 17F0413-01** Prepared: 06/14/17 Analyzed: 06/20/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	1.81	0.50	1.0	ug/L	2.00	ND	90.5	65-135	7.44	30	
Atrazine	1.62	0.30	0.50	ug/L	2.00	ND	81.1	65-135	10.8	30	
Molinate	1.63	0.20	2.0	ug/L	2.00	ND	81.3	65-135	5.73	30	J
Simazine	1.72	0.30	1.0	ug/L	2.00	ND	86.2	65-135	11.9	30	
Thiobencarb	1.57	0.20	1.0	ug/L	2.00	ND	78.6	65-135	16.4	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*2.02*			*ug/L*	*2.00*		*101*	*70-130*			

Organic Analytes by EPA Method 504.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73284 - EPA 504.1											
Blank (AF73284-BLK1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L							U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L							U
LCS (AF73284-BS1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.321	0.0040	0.010	ug/L	0.250		129	70-130			
1,2-Dibromoethane (EDB)	0.280	0.0050	0.020	ug/L	0.250		112	70-130			
LCS Dup (AF73284-BSD1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.213	0.0040	0.010	ug/L	0.250		85.3	70-130	40.4	25	QL-04
1,2-Dibromoethane (EDB)	0.205	0.0050	0.020	ug/L	0.250		81.8	70-130	31.0	25	QL-04
Matrix Spike (AF73284-MS1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.240	0.0040	0.010	ug/L	0.250	ND	96.2	70-130			
1,2-Dibromoethane (EDB)	0.226	0.0050	0.020	ug/L	0.250	ND	90.5	70-130			
Matrix Spike Dup (AF73284-MSD1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.253	0.0040	0.010	ug/L	0.250	ND	101	70-130	4.99	25	
1,2-Dibromoethane (EDB)	0.235	0.0050	0.020	ug/L	0.250	ND	93.9	70-130	3.78	25	

Chlorinated Acids by EPA Method 515.1 - Quality Control

Batch AF73233 - Herbicides

Blank (AF73233-BLK1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	ND	0.40	2.0	ug/L							U
2,4-D	ND	0.80	10	ug/L							U
Dalapon	ND	6.0	10	ug/L							U
Dinoseb	ND	0.80	2.0	ug/L							U
Pentachlorophenol	ND	0.20	0.20	ug/L							U
Picloram	ND	0.50	1.0	ug/L							U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L							U
Surrogate: DCAA	*13.5*			*ug/L*	*15.0*		*89.8*	*70-130*			

LCS (AF73233-BS1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.04	0.40	2.0	ug/L	1.92		107	70-130			
2,4-D	2.18	0.80	10	ug/L	1.92		113	48-124			J
Dalapon	12.4	6.0	10	ug/L	12.5		99.6	40-112			
Dinoseb	4.85	0.80	2.0	ug/L	6.42		75.5	20-105			
Pentachlorophenol	1.08	0.20	0.20	ug/L	0.960		113	70-130			
Picloram	1.14	0.50	1.0	ug/L	0.960		119	70-130			
2,4,5-TP (Silvex)	0.927	0.50	1.0	ug/L	0.960		96.6	70-130			J
Surrogate: DCAA	*12.7*			*ug/L*	*15.0*		*84.6*	*70-130*			

LCS Dup (AF73233-BSD1) Prepared: 06/08/17 Analyzed: 06/14/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.00	0.40	2.0	ug/L	1.92		104	70-130	2.40	50	
2,4-D	2.20	0.80	10	ug/L	1.92		114	48-124	1.06	50	J
Dalapon	13.0	6.0	10	ug/L	12.5		104	40-112	4.70	50	
Dinoseb	5.56	0.80	2.0	ug/L	6.42		86.6	20-105	13.7	50	
Pentachlorophenol	1.07	0.20	0.20	ug/L	0.960		111	70-130	1.72	50	
Picloram	1.07	0.50	1.0	ug/L	0.960		111	70-130	6.59	50	
2,4,5-TP (Silvex)	1.04	0.50	1.0	ug/L	0.960		108	70-130	11.0	50	
Surrogate: DCAA	*14.8*			*ug/L*	*15.0*		*98.4*	*70-130*			

Chlorinated Acids by EPA Method 515.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73233 - Herbicides											
Matrix Spike (AF73233-MS1)		**Source: 17F0087-01**			Prepared: 06/08/17 Analyzed: 06/15/17						
Bentazon	2.05	0.40	2.0	ug/L	1.92	ND	107	70-130			
2,4-D	2.25	0.80	10	ug/L	1.92	ND	117	48-124			J
Dalapon	12.3	6.0	10	ug/L	12.5	ND	98.8	40-112			
Dinoseb	6.04	0.80	2.0	ug/L	6.42	ND	94.1	20-105			
Pentachlorophenol	1.03	0.20	0.20	ug/L	0.960	ND	107	70-130			
Picloram	0.949	0.50	1.0	ug/L	0.960	ND	98.9	70-130			J
2,4,5-TP (Silvex)	1.07	0.50	1.0	ug/L	0.960	ND	111	70-130			
Surrogate: DCAA	*15.6*			*ug/L*	*15.0*		*104*	*70-130*			
Matrix Spike Dup (AF73233-MSD1)		**Source: 17F0087-01**			Prepared: 06/08/17 Analyzed: 06/15/17						
Bentazon	2.07	0.40	2.0	ug/L	1.92	ND	108	70-130	0.779	50	
2,4-D	2.06	0.80	10	ug/L	1.92	ND	108	48-124	8.44	50	J
Dalapon	10.7	6.0	10	ug/L	12.5	ND	85.8	40-112	14.2	50	
Dinoseb	5.26	0.80	2.0	ug/L	6.42	ND	82.0	20-105	13.8	50	
Pentachlorophenol	0.914	0.20	0.20	ug/L	0.960	ND	95.3	70-130	12.0	50	
Picloram	1.01	0.50	1.0	ug/L	0.960	ND	106	70-130	6.54	50	
2,4,5-TP (Silvex)	0.958	0.50	1.0	ug/L	0.960	ND	99.8	70-130	10.8	50	J
Surrogate: DCAA	*14.4*			*ug/L*	*15.0*		*95.9*	*70-130*			

Carbamates by EPA Method 531.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73245 - HPLC											
Blank (AF73245-BLK1)					Prepared & Analyzed: 06/12/17						
Carbofuran	ND	0.90	5.0	ug/L							U
Oxamyl	ND	1.0	20	ug/L							U
LCS (AF73245-BS1)					Prepared & Analyzed: 06/12/17						
Carbofuran	19.0	0.90	5.0	ug/L	20.0		94.9	80-120			
Oxamyl	21.2	1.0	20	ug/L	20.0		106	80-120			
LCS Dup (AF73245-BSD1)					Prepared & Analyzed: 06/12/17						
Carbofuran	22.2	0.90	5.0	ug/L	20.0		111	80-120	15.6	20	
Oxamyl	23.7	1.0	20	ug/L	20.0		119	80-120	11.1	20	
Matrix Spike (AF73245-MS1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	20.9	0.90	5.0	ug/L	20.0	ND	105	65-135			
Oxamyl	24.3	1.0	20	ug/L	20.0	ND	122	65-135			
Matrix Spike Dup (AF73245-MSD1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	24.1	0.90	5.0	ug/L	20.0	ND	120	65-135	14.0	20	
Oxamyl	24.5	1.0	20	ug/L	20.0	ND	122	65-135	0.591	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	06/23/17 14:35

Endothall by EPA Method 548.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73435 - EPA 548.1											
Blank (AF73435-BLK1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	ND	20	45	ug/L							U
LCS (AF73435-BS1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	225	20	45	ug/L	200		112	80-120			
LCS Dup (AF73435-BSD1)					Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	233	20	45	ug/L	200		116	80-120	3.52	30	
Matrix Spike (AF73435-MS1)		**Source: 17F0524-01**			Prepared: 06/13/17 Analyzed: 06/22/17						
Endothall	230	20	45	ug/L	200	ND	115	80-120			

Glyphosate by EPA Method 547 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73536 - HPLC											
Blank (AF73536-BLK1)					Prepared & Analyzed: 06/15/17						
Glyphosate	ND	3.0	25	ug/L							U
LCS (AF73536-BS1)					Prepared & Analyzed: 06/15/17						
Glyphosate	113	3.0	25	ug/L	120		94.0	70-130			
LCS Dup (AF73536-BSD1)					Prepared & Analyzed: 06/15/17						
Glyphosate	108	3.0	25	ug/L	120		90.3	70-130	3.99	30	
Matrix Spike (AF73536-MS1)		**Source: 17F0524-01**			Prepared & Analyzed: 06/15/17						
Glyphosate	107	3.0	25	ug/L	120	ND	89.1	70-130			
Matrix Spike Dup (AF73536-MSD1)		**Source: 17F0524-01**			Prepared: 06/15/17 Analyzed: 06/16/17						
Glyphosate	144	3.0	25	ug/L	120	ND	120	70-130	29.8	30	

Diquat by EPA Method 549.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73242 - HPLC											
Blank (AF73242-BLK1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	ND	2.0	4.0	ug/L							U
LCS (AF73242-BS1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	14.3	2.0	4.0	ug/L	20.0		71.5	70-130			
LCS Dup (AF73242-BSD1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	14.8	2.0	4.0	ug/L	20.0		74.0	70-130	3.45	25	
Matrix Spike (AF73242-MS1)		**Source: 17F0463-01**			Prepared: 06/08/17 Analyzed: 06/14/17						
Diquat	4.83	2.0	4.0	ug/L	20.0	ND	24.2	70-130			QM-07

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration, detected but not quantified (DNQ).
QL-04	The LCS/LCSD RPD for this analyte was outside of established control limits. Batch accepted based on acceptable recovery for both LCS/LCSD.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
T-14	Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time.
U	Analyte included in analysis, but not detected at or above MDL.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Suite 1
El Dorado Hills, CA 95762

June 19, 2017 Ceres ID: 11471

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482

The following report contains the results for the one drinking water sample received on June 14, 2017. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under Alpha Analytical Laboratories' project # 17F0524.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
11471-001	LGRS-02: Sonic Deep 17F0524-01	6/14/2017	6/6/2017	8:20

Section II: Data Summary

EPA Method 1613B

Quality Assurance Sample **Method Blank**		**Date Received:** NA
	QC Batch #: 1614	**Date Extracted:** 6/15/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/15/2017
Project ID: 17F0524	**Sample Size:** 1.000 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.15	1.35	5.00		13C-2378-TCDD	100	31-137	
					CRS			
					37Cl4-2378-TCDD	91.6	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.

EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.

(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**		**Date Received:** NA
	QC Batch #: 1614	**Date Extracted:** 6/15/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/15/2017
Project ID: 17F0524	**Sample Size:** 1.000 L	

Analyte	**Conc. (ng/mL)**	**Limits** (a)	**Labeled Standards**	**% Rec.**	**Limits** (a)
2,3,7,8-TCDD	9.11	7.3-14.6	13C-2378-TCDD	102	25-141
			CRS		
			37Cl4-2378-TCDD	93.1	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: LGRS-02: Sonic Deep 17F0524-01

Project ID:	17F0524	**Ceres Sample ID:**	11471-001	**Date Received:**	6/14/2017
		QC Batch #:	1614	**Date Extracted:**	6/15/2017
Date Collected:	6/6/2017	**Matrix:**	Drinking Water	**ZB-5MS Analysis:**	6/15/2017
Time Collected:	8:20 AM	**Sample Size:**	1.027 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.64	1.35	4.87		13C-2378-TCDD	97.5	31-137	
					CRS			
					37Cl4-2378-TCDD	101	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0524

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Ceres Labs
4919 Windplay Dr.
El Dorado Hills, CA 95762
Phone :(916) 932-5011
Fax: (916) 932-5017
Terms: Net 30

Analysis	Due	Expires	Comments
17F0524-01 LGRS-02: Sonic Deep [Water] Sampled 06/06/17 08:20			
Dioxin 2378 TCDD DW 1613	06/21/17 12:00	06/06/18 08:20	

Containers Supplied:
1L Amber- Unpres. (AB) 1L Amber- Unpres. (AC)

☐ *Report to State*

System Name:
User ID:
System Number:
Employed by:
Sampler:

+QC

Released By	Date	Received By	Date
	6-7-17		6/14/17 09:25
Released By	Date	Received By	Date

Sample Receipt Check List

Ceres ID: 11471	Date/Time: 6/14/17 09:25
Client Project ID: 17F0524	Received Temp: 1.6 °C Acceptable: [✓ Y] / N
Chain of Custody Relinquished by signed?	[✓ Y] / N
Custody Seals? Present? Intact? NA:	Y / N Y / N [✓ NA]
Unlabeled / Illegible Samples	Y / [✓ N]
Proper Containers:	[✓ Y] / N
Preservation Acceptable (Chemical or Temperature)? Drinking Water, Sodium Thiosulfate present? Residual Cl? Aqueous sample pH: [illegible]	[✓ Y] / N Y / [✓ N] / NA Y / [✓ N]
List COC discrepancies: 6/14/17	
List Damaged Samples: 6/14/17	

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

ASBESTOS TEM LABORATORIES, INC.

EPA 600/4-83 Drinking Water
Transmission Electron Microscopy
Analytical Report

Laboratory Job #350046

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429

ASBESTOS TEM LABORATORIES, INC

Certified by
CA DPH ELAP
Lab No. 1866

Jun/20/2017

David S. Pingatore
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

RE: LABORATORY JOB # 350046
Transmission electron microscopy analytical results for 1 water sample(s).
Job Site:
Job No.: 17F0524

Enclosed please find results for the TEM analysis of one or more water samples. The analytical procedures were performed according to EPA Method 100.2 for the analysis of asbestos in drinking water.

Prior to analysis, samples are checked for damage, disruption of any chain-of-custody seals, and completeness of accompanying paperwork. If no problems are found, samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Preparation of water samples is performed within a HEPA filtered, Class 100 air, laminar flow clean bench environment. Prior to filtration, water sample containers are ultrasonicated, and the exterior surfaces cleaned. An aliquot of water is drawn from the sample container and drawn through a special filtration apparatus and collected onto a mixed cellulose ester (MCE) or polycarbonate (PC) filter. The filters are removed from the apparatus and dried. A portion of each sample filter is sectioned, placed onto a glass microscope slide, and carbon coated. The filters are further sectioned and placed carbon side up onto 200-mesh copper TEM sample grids in a solvent bath until all filter material is dissolved. The TEM grids are removed and placed into labeled grid storage boxes.

TEM analysis is performed on a Philips EM-300 or CM-12 transmission electron microscope operating at 80 or 100 kV. Initially, the grid is scanned at low and medium magnification to insure proper sample loading, and coherence of the carbon support film. Then TEM grid openings are analyzed at a magnification of 10,000X. All fibers >10 um in length and exhibiting an aspect ratio >3:1 are analyzed. Scanning continues until either 100 asbestiform fibers >10um in length are counted, or an analytical sensitivity of 0.2 million fibers per liter (MFL) is achieved. Analyzed fibers are subjected to detailed morphological and selected area diffraction (SAED) analysis. Fibers indicated as asbestos, or potentially asbestos, are further analyzed by energy dispersive X-ray (EDX) analysis as needed. The number of asbestos fibers detected, and other analytical parameters, are then used to calculate the concentration of asbestos in MFL. The results are entered into a standard report format and reviewed by the analyst and the laboratory manager before release to the client.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY ANALYTICAL REPORT

Contact: David S. Pingatore

Address: Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

Job Site / No. 17F0524

Report No.: 350046

Date: Jun-20-17

Total Samples Analyzed: 1

Sample Collector:

CLIENT SAMPLE # 17F0524-01

Laboratory Sample # 1288-01178-001

SAMPLE LOCATION/DESCRIPTION

LGRS-02 : Sonic Deep [Water]

WATER SAMPLE DATA

Date/Time Collected	Jun-06-17	8:20 am
Date/Time Lab Received	Jun-07-17	11:59 am
Date/Time Filtered	Jun-07-17	2:50 pm
Date/Time Analyzed	Jun-20-17	11:00 am

Volume Submitted (ml)	1000
Volume Filtered (ml)	5
Filter & Pore Size	MCE0.22
UV/Ozone Treated:	NO

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		OTHER	
CHRYS	AMPH	AMBIG	NON-ASB
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	AMPH	TOTAL
< 0.2 MFL	< 0.2 MFL	< 0.2 MFL

COMMENTS

No Asbestos Detected

Filter Loading: MODERATE

SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	24
Grid Opening Area (mm2)	0.0088
Scan Area (mm2)	0.2112

Analytical Sensitivity	0.2 MFL
95% UCL	0.70 MFL
95% LCL	0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-14564
Grid Openings Scanned at 10,000X	8
Volume Filtered (ml)	300

Analytical Sensitivity	0.01 MFL
Asbestos Structure Concentration	<0.01 MFL

NOTATION KEY

Chrys. - Chrysotile Asbestos
Amph. - Amphibole Asbestos
NSD - No Structures Detected
1 mm = 1 millimeter

1 um = 1 micron = 0.001 mm
MFL = Millions of Fibers per Liter
UCL = Upper Confidence Level
LCL = Lower Confidence Level

Analyzed by Yang Zhang

Crystal Replogle

Reviewed by Crystal Replogle

350046

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0524

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc.	Asbestos TEM Laboratories, Inc.
208 Mason St.	630 Bancroft Way
Ukiah, CA 95482	Berkeley, CA 94710
Phone: (707)468-0401	Phone :(510) 704-8930
Fax: (707)468-5267	Fax: (510) 704-8429
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	Due	Expires	Comments
17F0524-01 LGRS-02: Sonic Deep [Water] Sampled 06/06/17 08:20			
Asbestos-DW SUB	06/21/17 12:00	06/08/17 08:20	12.7 13.0
Containers Supplied: 1L Amber- Unpres. (J) 1L Amber- Unpres. (K)			

☐ *Report to State*

System Name: ____________ **Employed by:** ____________

User ID: ____________ **Sampler:** ____________

System Number: ____________

RECEIVED JUN - 7 2017

6/7/17			11:59
Released By	Date	Received By	Date
Released By	Date	Received By	Date

June 23, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706919
Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
LGRS-02: Sonic Deep	06/06/2017	06/09/2017	SP 1706919-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	06/15/2017:208883 All analysis quality controls are within established criteria
	06/13/2017:206959 All preparation quality controls are within established criteria
903.0	06/16/2017:209037 All analysis quality controls are within established criteria
	06/13/2017:206992 All preparation quality controls are within established criteria
905.0	06/16/2017:209069 All analysis quality controls are within established criteria
	06/13/2017:206993 All preparation quality controls are within established criteria
906.0	06/17/2017:209063 All analysis quality controls are within established criteria
	06/16/2017:207148 All preparation quality controls are within established criteria

Radio QC

Ra - 05	06/22/2017:209282 All analysis quality controls are within established criteria
	06/19/2017:206868 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**

Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-06-23

June 23, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Description : LGRS-02: Sonic Deep
Project : 17F0524

Lab ID : SP 1706919-001
Customer ID : 2-20626

Sampled On : June 6, 2017-08:20
Sampled By : Not Available
Received On : June 9, 2017-11:30
Matrix : Water

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.311 ± 0.932	1.35	pCi/L	15/5	900.0	06/13/17-10:00 2P1706959	900.0	06/15/17-15:10 2A1708883
Gross Beta	1.63 ± 1.07	1.21	pCi/L	50	900.0	06/13/17-10:00 2P1706959	900.0	06/15/17-15:10 2A1708883
Strontium 90	0.000 ± 0.472	0.491	pCi/L	8	905.0	06/13/17-18:30 2P1706993	905.0	06/16/17-16:00 2A1709069
Total Alpha Radium (226)	0.084 ± 0.123	0.363	pCi/L	3	903.0	06/13/17-18:14 2P1706992	903.0	06/16/17-17:10 2A1709037
Tritium	277 ± 266	434	pCi/L	20000	906.0	06/16/17-13:13 2P1707148	906.0	06/17/17-02:00 2A1709063
Ra 228	0.016 ± 0.265	0.192	pCi/L	2	Ra - 05	06/19/17-18:00 2P1706868	Ra - 05	06/22/17-20:30 2A1709282

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

June 23, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706919
Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	06/15/17:208883aat	CCV	cpm	8762	41.6 %	35-47	
			CCB	cpm		0.0800	0.21	
Beta	900.0	06/15/17:208883aat	CCV	cpm	8762	88.2 %	83-94	
			CCB	cpm		0.4600	0.51	
Gross Alpha	900.0	06/13/17:206959aat	Blank	pCi/L		0.17	3	
			LCS	pCi/L	108.2	105 %	75-125	
			MS	pCi/L	108.2	83.3 %	60-140	
		(SP 1706919-001)	MSD	pCi/L	108.2	73.8 %	60-140	
			MSRPD	pCi/L	108.2	12.0%	≤30	
Gross Beta	900.0	06/13/17:206959aat	Blank	pCi/L		0.17	4	
			LCS	pCi/L	73.08	125 %	93-144	
			MS	pCi/L	73.09	98.5 %	80-130	
		(SP 1706919-001)	MSD	pCi/L	73.09	94.6 %	80-130	
			MSRPD	pCi/L	108.2	4.0%	≤30	
Alpha	903.0	06/16/17:209037rmm	CCV	cpm	8384	41.0 %	37-46	
			CCB	cpm		0.0400	0.16	
Total Alpha Radium (226)	903.0	06/13/17:206992rmm	RgBlk	pCi/L		-0.01	2	
			LCS	pCi/L	21.85	56.7 %	52-107	
			BS	pCi/L	21.85	67.0 %	43-111	
			BSD	pCi/L	21.85	58.9 %	43-111	
			BSRPD	pCi/L	21.85	12.7%	≤35.5	
Beta	905.0	06/16/17:209069rmm	CCV	cpm	8761	89.9 %	85-93	
			CCB	cpm		0.3800	0.51	
Total Strontium	905.0	06/13/17:206993emv	RgBlk	pCi/L		0.41	2	
			LRS	pCi/L	36.68	65.9 %	53-133	
			BS	pCi/L	36.67	85.1 %	75-125	
			BSD	pCi/L	36.67	80.5 %	75-125	
			BSRPD	pCi/L	36.67	5.6%	≤20	
Tritium	906.0	06/16/17:207148elc	Blank	pCi/L		193	<300	
			LCS	pCi/L	1675	94.6 %	75-125	
			BS	pCi/L	1675	80.1 %	75-125	
			BSD	pCi/L	1675	93.3 %	75-125	
			BSRPD	pCi/L	1675	13.4%	≤25	
	906.0	06/17/17:209063elc	CCV	pCi/L	28860	104 %	90-110	
			CCB	pCi/L		7	500	
Beta	Ra - 05	06/22/17:209282emv	CCV	cpm	8756	89.0 %	84-94	
			CCB	cpm		0.4400	0.51	
Ra 228	Ra - 05	06/19/17:206868emv	RgBlk	pCi/L		0.11	3	
			LRS	pCi/L	37.56	83.0 %	65-108	
			BS	pCi/L	37.56	106 %	75-125	
			BSD	pCi/L	37.56	107 %	75-125	
			BSRPD	pCi/L	37.56	0.2%	≤25	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyted. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.

Quality Control - Radio

Definition	
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

eurofins Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
AT-1807

Laboratory Report

for

Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482
Attention: David S. Pingatore
Fax: 707-468-5267

Date of Issue
07/05/2017
EUROFINS EATON ANALYTICAL, INC.

NELAP ACCREDITED TNI LABORATORY
ORELAP 4034

Report: 666410
Project: DRINKING
Group: ORGANICS - EPA 500's

M5B: Magnolia Busse

Project Manager

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Arizona	AZ0778	**Montana**	Cert 0035
Arkansas	Certified	**Nebraska**	Certified
California-Monrovia-ELAP	2813	**Nevada**	CA00006-2016
California-Colton- ELAP	2812	**New Hampshire ***	2959
California-Folsom- ELAP	2820	**New Jersey ***	CA 008
California-Fresno- ELAP	2966	**New Mexico**	Certified
Colorado	Certified	**New York ***	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida *	E871024	**Oregon (Primary AB) ***	**ORELAP 4034**
Georgia	947	**Pennsylvania ***	68-565
Guam	16-003r	**Puerto Rico**	Certified
Hawaii	Certified	**Rhode Island**	LAO00326
Idaho	Certified	**South Carolina**	87016
Illinois *	200033	**South Dakota**	Certified
Indiana	C-CA-01	**Tennessee**	TN02839
Kansas *	E-10268	**Texas ***	T104704230-15-9
Kentucky	90107	**Utah ***	CA000062016-10
Louisiana *	LA16003	**Vermont**	VT0114
Maine	CA0006	**Virginia ***	460260
Maryland	224	**Washington**	C838
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	Certified
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^=$ D		x	
Sulfite	SM 4500-SO^3B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

Acknowledgement of Samples Received

Addr:	**Alpha Analytical Laboratories, Inc.** 208 Mason Street Ukiah, CA 95482	Client ID: Folder #: Project: Sample Group:	ALPHA-UKIAH 666410 DRINKING ORGANICS - EPA 500's
Attn: Phone:	David S. Pingatore 925 828 6226	Project Manager: Phone: PO #:	Magnolia Busse 916-605-3387 17F0524

The following samples were received from you on **June 14, 2017** at **0957**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
201706140290	17F0524-01 LGRS-02: Sonic Deep	06/06/2017 0820
	Variable ID: 17F0524-01	
	@525_FGL_SHORT C	

Test Description

@525_FGL_SHORT C -- Semivolatiles by GCMS

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0524

66410

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Eurofins Eaton Analytical Inc.
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016
Phone :626-568-6463
Fax: 626-568-6324
Terms: Net 30

Analysis	Due	Expires	Comments
17F0524-01 LGRS-02: Sonic Deep [Water] Sampled 06/06/17 08:20			
525.2 DDW SVOC Reg3	06/21/17 12:00	06/20/17 08:20	

Containers Supplied:
1L Amber-HCl (U) 1L Amber-HCl (V)

☐ *Report to State*

System Name:

User ID:

System Number:

Employed by:

Sampler:

+QC

	6-7-17		6/9/17 950
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Page 1 of 1

eurofins | Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number 66410

SAMPLES REC'D DAY OF COLLECTION? ☐

SAMPLE TEMP RECEIVED:

IR Gun ID = 359 (Observation= 1.8 °C) (Corr.Factor 02 °C) (Final = 1.6 °C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____

CONDITION OF ICE: Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: ____ ON TRAC ✓ D.C.S ____

Compliance Acceptance Criteria:

1) Chemistry: >0, ≤6°C, not frozen (NELAP) (If received after 24 hrs of sample collection)

2) Microbiology, Distribution: < 10°C, not frozen.(can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) Microbiology, Surface Water: < 10°C (If received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3 : (non-GLEC)

524.3:. (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤10°C if received within 48 hours of sample collection (not the same business day); ≤6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) LT2: Giardia /Cryptosporidium: <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (If received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

6) Dioxin (1613 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (If received after 24 hrs of sample collection)

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:		[illegible]	Eurofins Eaton Analytical	6-14-17	955

Page ___ of ___

OnTrac On Time Delivery For Less
ontrac.com 800.334.5000

Waybill

1a. OnTrac Account Number
[redacted]

1b. Date
MM/DD/YY 06/3/7

Tracking Number
B10320566942

Pre-Print Number
65931

2. FROM (Company)
ALPHA ANALYTICAL LAB*

Street Address
208 MASON ST Suite

City
UKIAH

State CA ZIP Code 95482 Phone Number 707-468-0401

PLEASE PRINT IN BLOCK LETTERS WITH BLUE OR BLACK INK ONLY

3. TO (Company) WE CANNOT DELIVER TO P.O. BOXES OR P.O. ZIP CODES
EUROFINS EATON ANALY INC

Street Address
750 ROYAL OAKS DR

Suite City
MONRUVIA

State CA ZIP Code 91016 Phone Number 626-568-6463

Recipient's Name
SAMPLE RECEIVING

4. Shipper's Reference Number

5. WEIGHT SUBJECT TO VERIFICATION
☐ 8 oz. Letter or
LBS

6. SERVICE LEVEL COMMITMENT TIMES MAY VARY
☑ Sunrise NEXT BUSINESS MORNING *Default service if none selected*
☐ Sunrise Gold EARLY NEXT BUSINESS MORNING *Please attach a Sunrise Gold sticker*
☐ Palletized Freight NEXT BUSINESS DAY *300 lbs. minimum charge*

7. SERVICE OPTIONS ADDITIONAL CHARGES MAY APPLY
☐ Signature Required
☐ Saturday Delivery AVAILABLE IN SELECT ZIP CODES *Please attach a Saturday Delivery sticker*
☐ Hold for Pickup AT DESTINATION'S NEAREST FACILITY *Photo ID required at pickup*

8. COLLECT ON DELIVERY $10,000 LIMIT. PLEASE ATTACH COD TAG. ADDITIONAL CHARGE APPLIES.
☐ SECURED PAYMENT *Money Order or Certified Check* → $.
☐ UNSECURED PAYMENT *Company or Personal Check* →

9. DECLARED VALUE ADDITIONAL CHARGE APPLIES. LIABILITY LIMITED TO $100 UNLESS DECLARED. $25,000 LIABILITY LIMIT. SHIPMENTS WITH A DECLARED VALUE REQUIRE A DELIVERY SIGNATURE.
$ [redacted] .00

10. PAYMENT SHIPPER BILLED IF NONE SELECTED
☑ Shipper ☐ Other Account
[redacted]

11a. Shipper's Name
FIRST LAST R PHILLIPS

OnTrac Use: Driver Number / PU Time / Initials
1 2 3 4 5
H H M M A/P

11b. Shipper's Signature
BY USING THIS WAYBILL YOU AGREE TO THE ONTRAC TERMS AND CONDITIONS

CARGO IS SUBJECT TO SCREENING AS PER GOVERNMENT REGULATIONS.

Recipient Copy

SEE ONTRAC.COM FOR OUR TERMS AND CONDITIONS.

Laboratory Comments

Report: 666410
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Flags Legend:

S6 - Surrogate recovery was below laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

The Comments Report may be blank if there are no comments for this report.

Laboratory Hits

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 666410
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/14/2017 0957

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL

SUMMARY OF POSITIVE DATA ONLY

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/14/2017 0957

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution

17F0524-01 LGRS-02: Sonic Deep (201706140290) **Sampled on 06/06/2017 0820**

Variable ID: 17F0524-01

EPA 525.2 - Semivolatiles by GCMS

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Benzo(a)pyrene	ND (S6)	ug/L	0.02	1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND (S6)	ug/L	0.6	1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	96	%		1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Acenaphthene-d10	69	%		1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Chrysene-d12	73	%		1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Perylene-d12	55	%		1
06/20/17	06/29/17 18:33	1004526	1007197	(EPA 525.2)	Phenanthrene-d10	78	%		1

Rounding on totals after summation.
(c) - indicates calculated results

Semivolatiles by GCMS

Prep Batch: 1004526 Analytical Batch: 1007197 **Analysis Date: 06/29/2017**

201706140290 17F0524-01 LGRS-02: Sonic Deep Analyzed by: JWC

Laboratory QC

Report: 666410
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
Semivolatiles by GCMS by EPA 525.2									
Prep Batch: 1004526 Analytical Batch: 1007197							**Analysis Date: 06/29/2017**		
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			106	%	107	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			106	%	106	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			102	%	102	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			108	%	108	(70-130)		
LCS1	Acenaphthene-d10 (I)			88.1	%	88	(50-150)		
LCS2	Acenaphthene-d10 (I)			77.1	%	77	(50-150)		
MBLK	Acenaphthene-d10 (I)			80.4	%	80	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			80.9	%	81	(50-150)		
LCS1	Benzo(a)pyrene		2	1.91	ug/L	95	(70-130)		
LCS2	Benzo(a)pyrene		2	1.89	ug/L	94	(70-130)	20	1.1
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0220	ug/L	110	(50-150)		
LCS1	Chrysene-d12 (I)			91.1	%	91	(50-150)		
LCS2	Chrysene-d12 (I)			85.9	%	86	(50-150)		
MBLK	Chrysene-d12 (I)			76.4	%	76	(50-150)		
MRL_CHK	Chrysene-d12 (I)			86.2	%	86	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.17	ug/L	109	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.13	ug/L	107	(70-130)	20	1.9
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.295	ug/L	98	(50-150)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.12	ug/L	106	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.03	ug/L	101	(70-130)	20	4.3
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.608	ug/L	101	(50-150)		
LCS1	Perylene-d12 (S)			93.0	%	93	(70-130)		
LCS2	Perylene-d12 (S)			96.0	%	96	(70-130)		
MBLK	Perylene-d12 (S)			72.6	%	73	(70-130)		
MRL_CHK	Perylene-d12 (S)			88.9	%	89	(70-130)		
LCS1	Phenanthrene-d10 (I)			90.3	%	90	(50-150)		
LCS2	Phenanthrene-d10 (I)			80.6	%	81	(50-150)		
MBLK	Phenanthrene-d10 (I)			81.8	%	82	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			82.0	%	82	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Alpha
Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35, Dublin CA 94568
925-828-6226 F) 925-828-6309

Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 17F0524 Pg 1 of 1

Report to	**Invoice to (if different)**	**Project Information**
Company: Todd Groundwater	Contact:	Project ID: SCVWD IPR JD Morgan Park
Attn: Amber J Ritchie, GIT	Email address:	Project No:
Address: 2490 Mariner Square Loop, Suite 215 Alameda CA 94501	Address:	PO Number: 37809
Phone/Fax: 510-747.6920 x103; 846.633.9712	Phone/Fax:	
Email Address: aritchie@toddgroundwater.com		

Field Sampler - Printed Name & Signature: Nicholas Drachenberg

Signature below authorizes work under terms stated on reverse side.

TAT
Standard 10 days ●
RUSH: 5 days ○
48 hours ○
Other: ____days ○
Lab preapproval required

Temp upon Receipt °C
Ukiah temp: 3.0
Dublin temp: 1.5°C
Elk Grove temp:

Sample Identification	Sampling		Container					Preservative					Matrix				Analysis Request											
	Date	Time	40ml Vial	Poly	Glass	Sleeve	Other	HCl	HNO3	H2SO4	Other	None	Water	Soil	Other	Total Number of Containers per Sample ID	DU - General Physical	Inorganics / general Mineral / Perchlorte / U 200.8	Cr6 218.6 DW	524.2 DDW Volatiles	DDW 504.1 507 508 515.1 525.2 531.1 547 548 549	DU pull - Asbestos DW (sub TEM)	Dioxin 2,3,7,8 TCDD (sub Ceres)	Gross Alpha & Beta (sub FGL)	Radium 226 & 228 (sub FGL)	Strontium 90 / Tritium (sub FGL)	j-flag MDL format	Sample Notes or DDW Source Numbers:
LGRS-02: Sonic Deep **Morgan Park 04**	6/6/17	0820											x			1	x										x	
													x			3		x										
													x			1			x									
													x			4				x								
													x			16					x							
													x			2						x						
													x			2							x					
													x			1								x				
													x			3									x			
													x			3										x		

Relinquished by	Received by	Date	Time
	(S.C)	6/6/7	1200
RTS/SC		6/6/17	1630
	C.B	6/6/17	17.55
C.B		6/6	1800
		6/6	2100

DDW Write On EDT Transmission? ○ Yes ● No
State System Number:
If "Y" please enter the Source Number(s) in the column above

CA Geotracker EDF Report? ○ Yes ○ No
Global ID:
Sampling Company Log Code:
EDF to (Email Address):
Travel and Site Time:
Mileage:
Misc. Supplies:

alpha
Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

12 July 2017

Todd Groundwater
Amber Ritchie
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: SCVWD IPR JD Morgan Park
Work Order: 17F0147

Enclosed are the results of analyses for samples received by the laboratory on 06/01/17 21:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For David S. Pingatore
Project Manager

Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LGRS-03: Rotary Shallow	17F0147-01	Water	06/01/17 14:15	06/01/17 21:50

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:58

LGRS-03: Rotary Shallow

17F0147-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals (Drinking Water) by EPA 200 Series Methods										
Calcium	**45**	0.20	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	EPA 200.7	
Iron	**78**	20	100	ug/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	EPA 200.7	J
Magnesium	**18**	0.030	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	EPA 200.7	
Mercury	ND	0.060	1.0	ug/L	1	AF73384	06/12/17 08:55	06/12/17 13:03	EPA 245.1	U
Potassium	**1.1**	0.040	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	EPA 200.7	
Sodium	**32**	0.020	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	EPA 200.7	
Metals by EPA 200 Series Methods										
Chromium, hexavalent	**0.52**	0.050	1.0	ug/L	1	AF73168	06/06/17 20:27	06/06/17 20:27	EPA 218.6	J
Metals by EPA Method 200.8 ICP/MS										
Aluminum	**41**	8.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Antimony	**0.13**	0.080	6.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Arsenic	ND	0.80	2.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Barium	**64**	0.20	100	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Beryllium	ND	0.080	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Cadmium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Chromium	**2.5**	0.32	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Copper	**0.76**	0.20	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Lead	ND	0.080	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Manganese	**4.3**	0.20	20	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Nickel	**0.82**	0.24	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Selenium	ND	0.80	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Silver	ND	0.20	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Thallium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U
Uranium	**0.10**	0.080	1.0	pCi/l	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	J
Zinc	ND	2.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:03	EPA 200.8	U

LGRS-03: Rotary Shallow

17F0147-01(Water)

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Aggressive Index	**11.46**		2.00	NU	1	AF73148	06/07/17 09:22	06/16/17 06:28	AWWA	
Bicarbonate	**120**	1.0	5.0	mg/L	1	AF73235	06/09/17 08:00	06/09/17 11:59	SM2320B	
Carbonate	ND	1.0	5.0	mg/L	1	AF73235	06/09/17 08:00	06/09/17 11:59	SM2320B	U
Color	**8.0**	3.0	5.0	CU	1	AF73079	06/01/17 20:10	06/01/17 20:10	SM2120B	
Hydroxide	ND	1.0	5.0	mg/L	1	AF73235	06/09/17 08:00	06/09/17 11:59	SM2320B	U
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L	1	AE74270	06/02/17 14:00	06/07/17 14:15	SM5540C	U
Odor	ND		1.0	T.O.N.	1	AF73079	06/01/17 20:10	06/01/17 20:10	EPA 140.1	U
Perchlorate	ND	0.90	4.0	ug/L	1	AF73107	06/05/17 09:05	06/05/17 13:33	EPA 314.0	U
pH	**7.43**	1.68	1.68	pH Units	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM4500-H+ B	T-14
Specific Conductance (EC)	**550**	1.0	20	umhos/cm	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM2510B	
Total Dissolved Solids	**310**	5.0	10	mg/L	1	AF73199	06/07/17 08:14	06/14/17 14:15	SM2540C	
Turbidity	**1.6**	0.050	0.10	NTU	1	AF73080	06/02/17 16:15	06/02/17 16:15	SM2130B	
Total Alkalinity as CaCO3	**95**	1.0	5.0	mg/L	1	AF73235	06/09/17 08:00	06/09/17 11:59	SM2320B	
Nitrate + Nitrite as N	**0.50**	0.0086	0.40	mg/L	1	AF73143	06/06/17 09:19	06/09/17 09:40	Calculation	
Hardness, Total	**187**	1	5	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:44	SM2340B	

Miscellaneous Physical/Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Cyanide (total)	ND	0.0020	0.10	mg/L	1	AF73140	06/06/17 12:36	06/06/17 12:36	10-204-00-1X	U

Anions by EPA Method 300.0

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**87**	1.0	5.0	mg/L	10	AF73063	06/02/17 19:50	06/02/17 19:50	EPA 300.0	
Fluoride	**0.11**	0.070	0.10	mg/L	1	AF73063	06/02/17 20:06	06/02/17 20:06	EPA 300.0	
Nitrate as N	**0.50**	0.040	0.40	mg/L	1	AF73063	06/02/17 20:06	06/02/17 20:06	EPA 300.0	
Nitrite as N	ND	0.050	0.40	mg/L	1	AF73063	06/02/17 20:06	06/02/17 20:06	EPA 300.0	U
Sulfate as SO4	**36**	0.20	0.50	mg/L	1	AF73063	06/02/17 20:06	06/02/17 20:06	EPA 300.0	

Todd Groundwater	Project Manager:	Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project:	SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number:	[none]	07/12/17 13:58

LGRS-03: Rotary Shallow

17F0147-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by EPA Method 524.2										
Benzene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Carbon tetrachloride	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Chlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,1-Dichloroethane	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,2-Dichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,1-Dichloroethene	**0.39**	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	J
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,2-Dichloropropane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Ethylbenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Methylene chloride	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Styrene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Tetrachloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Toluene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
1,1,1-Trichloroethane	**0.94**	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Trichloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Trichlorofluoromethane	ND	0.50	5.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Trichlorotrifluoroethane	ND	0.40	10	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Vinyl chloride	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Xylenes (total)	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:49	EPA 524.2	U
Surrogate: Bromofluorobenzene			*102 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:49*	*EPA 524.2*	
Surrogate: Dibromofluoromethane			*87.1 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:49*	*EPA 524.2*	
Surrogate: Toluene-d8			*98.5 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:49*	*EPA 524.2*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LGRS-03: Rotary Shallow

17F0147-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chlorinated Pesticides and PCBs by EPA Method 508										
Endrin	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Heptachlor	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Heptachlor epoxide	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Hexachlorobenzene	ND	0.010	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Methoxychlor	ND	0.020	10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1016	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1221	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1232	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1242	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1248	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1254	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
PCB-1260	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Total PCBs	ND	0.30	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Toxaphene	ND	0.40	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Chlordane (tech)	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 03:03	EPA 508	U
Surrogate: Dibutylchlorendate			*80.3 %*	*70-130*		*AF73122*	*06/05/17 11:57*	*06/10/17 03:03*	*EPA 508*	
Nitrogen- and Phosphorus- Pesticides by EPA Method 507										
Alachlor	ND	0.50	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 03:03	EPA 507	U
Atrazine	ND	0.30	0.50	ug/L	1	AF73181	06/06/17 14:50	06/09/17 03:03	EPA 507	U
Molinate	ND	0.20	2.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 03:03	EPA 507	U
Simazine	ND	0.30	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 03:03	EPA 507	U
Thiobencarb	ND	0.20	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 03:03	EPA 507	U
Surrogate: 1,3-Dimethyl-2-nitrobenzene			*90.3 %*	*70-130*		*AF73181*	*06/06/17 14:50*	*06/09/17 03:03*	*EPA 507*	

LGRS-03: Rotary Shallow

17F0147-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organic Analytes by EPA Method 504.1										
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L	1	AF73284	06/12/17 07:00	06/13/17 00:02	EPA 504.1	U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L	1	AF73284	06/12/17 07:00	06/13/17 00:02	EPA 504.1	U
Chlorinated Acids by EPA Method 515.1										
Bentazon	ND	0.40	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
2,4-D	ND	0.80	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
Dalapon	ND	6.0	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
Dinoseb	ND	0.80	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
Pentachlorophenol	ND	0.20	0.20	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
Picloram	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:01	EPA 515.1	U
Surrogate: DCAA			*75.7 %*	*70-130*		*AF73233*	*06/08/17 07:00*	*06/15/17 01:01*	*EPA 515.1*	
Carbamates by EPA Method 531.1										
Carbofuran	ND	0.90	5.0	ug/L	1	AF73245	06/12/17 07:39	06/12/17 23:33	EPA 531.1	U
Oxamyl	ND	1.0	20	ug/L	1	AF73245	06/12/17 07:39	06/12/17 23:33	EPA 531.1	U
Endothall by EPA Method 548.1										
Endothall	ND	20	45	ug/L	1	AF73184	06/07/17 15:25	06/08/17 21:08	EPA 548.1	U
Glyphosate by EPA Method 547										
Glyphosate	ND	3.0	25	ug/L	1	AF73108	06/05/17 09:32	06/05/17 19:06	EPA 547	U
Diquat by EPA Method 549.2										
Diquat	ND	2.0	4.0	ug/L	1	AF73099	06/05/17 06:25	06/07/17 16:53	EPA 549.2	U

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Batch AF73148 - Metals Digest

Blank (AF73148-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	ND	0.20	1.0	mg/L							U
Iron	ND	20	100	ug/L							U
Magnesium	ND	0.030	1.0	mg/L							U
Potassium	ND	0.040	1.0	mg/L							U
Sodium	0.0725	0.020	1.0	mg/L							J

LCS (AF73148-BS1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	7.46	0.20	1.0	mg/L	8.00		93.3	85-115			
Iron	1880	20	100	ug/L	2000		94.2	85-115			
Magnesium	7.41	0.030	1.0	mg/L	8.00		92.6	85-115			
Potassium	7.35	0.040	1.0	mg/L	8.00		91.9	85-115			
Sodium	8.01	0.020	1.0	mg/L	8.00		100	85-115			

Duplicate (AF73148-DUP1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	81.2	0.20	1.0	mg/L		78.7			3.08	20	
Iron	40.8	20	100	ug/L		36.0			12.5	20	J
Magnesium	46.5	0.030	1.0	mg/L		45.7			1.80	20	
Potassium	1.70	0.040	1.0	mg/L		1.60			6.15	20	
Sodium	35.7	0.020	1.0	mg/L		34.6			3.27	20	

Matrix Spike (AF73148-MS1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	90.1	0.20	1.0	mg/L	8.00	78.7	142	70-130			QM-4X
Iron	1930	20	100	ug/L	2000	36.0	94.7	70-130			
Magnesium	53.7	0.030	1.0	mg/L	8.00	45.7	100	70-130			
Potassium	9.24	0.040	1.0	mg/L	8.00	1.60	95.4	70-130			
Sodium	43.2	0.020	1.0	mg/L	8.00	34.6	107	70-130			

Matrix Spike (AF73148-MS2) **Source: 17F0124-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	23.1	0.20	1.0	mg/L	8.00	14.9	103	70-130			
Iron	4750	20	100	ug/L	2000	2280	124	70-130			
Magnesium	16.9	0.030	1.0	mg/L	8.00	9.02	98.6	70-130			
Potassium	291	0.040	1.0	mg/L	8.00	281	120	70-130			
Sodium	50.2	0.020	1.0	mg/L	8.00	43.0	90.1	70-130			

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73148 - Metals Digest											
Matrix Spike Dup (AF73148-MSD1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Calcium	92.9	0.20	1.0	mg/L	8.00	78.7	177	70-130	3.05	20	QM-4X
Iron	1980	20	100	ug/L	2000	36.0	97.1	70-130	2.47	20	
Magnesium	54.1	0.030	1.0	mg/L	8.00	45.7	106	70-130	0.773	20	
Potassium	9.27	0.040	1.0	mg/L	8.00	1.60	95.8	70-130	0.318	20	
Sodium	44.6	0.020	1.0	mg/L	8.00	34.6	125	70-130	3.27	20	
Batch AF73384 - EPA 245.1 Hg Water											
Blank (AF73384-BLK1)					Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L							U
LCS (AF73384-BS1)					Prepared & Analyzed: 06/12/17						
Mercury	2.75	0.060	1.0	ug/L	2.50		110	85-115			
Duplicate (AF73384-DUP1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L		ND				20	U
Matrix Spike (AF73384-MS1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.65	0.060	1.0	ug/L	2.50	ND	106	70-130			
Matrix Spike Dup (AF73384-MSD1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.63	0.060	1.0	ug/L	2.50	ND	105	70-130	0.758	20	

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73168 - General Preparation											
Blank (AF73168-BLK1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L							U
LCS (AF73168-BS1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.3	0.050	1.0	ug/L	10.0		103	90-110			
Duplicate (AF73168-DUP1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L		ND				20	U
Matrix Spike (AF73168-MS1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.86	0.050	1.0	ug/L	10.0	ND	98.6	90-110			
Matrix Spike (AF73168-MS2)		**Source: 17F0151-01**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.9	0.050	1.0	ug/L	10.0	0.990	98.6	90-110			
Matrix Spike Dup (AF73168-MSD1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.94	0.050	1.0	ug/L	10.0	ND	99.4	90-110	0.778	20	

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73110 - EPA 200.8											
Blank (AF73110-BLK1)					Prepared: 06/05/17 Analyzed: 06/08/17						
Aluminum	ND	2.0	50	ug/L							U
Antimony	0.0429	0.020	6.0	ug/L							J
Arsenic	0.302	0.20	2.0	ug/L							J
Barium	ND	0.050	100	ug/L							U
Beryllium	ND	0.020	1.0	ug/L							U
Cadmium	ND	0.050	1.0	ug/L							U
Chromium	0.147	0.080	10	ug/L							J
Copper	ND	0.050	50	ug/L							U
Lead	ND	0.020	5.0	ug/L							U
Manganese	ND	0.050	20	ug/L							U
Nickel	ND	0.060	10	ug/L							U
Selenium	ND	0.20	5.0	ug/L							U
Silver	ND	0.050	10	ug/L							U
Thallium	ND	0.050	1.0	ug/L							U
Uranium	ND	0.020	1.0	pCi/l							U
Zinc	ND	0.50	50	ug/L							U
LCS (AF73110-BS1)					Prepared: 06/05/17 Analyzed: 06/08/17						
Aluminum	556	2.0	50	ug/L	520		107	85-115			
Antimony	21.0	0.020	6.0	ug/L	20.0		105	85-115			
Arsenic	21.1	0.20	2.0	ug/L	20.0		105	85-115			
Barium	20.7	0.050	100	ug/L	20.0		103	85-115			J
Beryllium	22.6	0.020	1.0	ug/L	20.0		113	85-115			
Cadmium	20.3	0.050	1.0	ug/L	20.0		101	85-115			
Chromium	20.5	0.080	10	ug/L	20.0		102	85-115			
Copper	20.1	0.050	50	ug/L	20.0		101	85-115			J
Lead	21.2	0.020	5.0	ug/L	20.0		106	85-115			
Manganese	20.9	0.050	20	ug/L	20.0		104	85-115			
Nickel	19.9	0.060	10	ug/L	20.0		99.4	85-115			
Selenium	20.7	0.20	5.0	ug/L	20.0		104	85-115			
Silver	20.3	0.050	10	ug/L	20.0		102	85-115			
Thallium	21.2	0.050	1.0	ug/L	20.0		106	85-115			
Uranium	14.0	0.020	1.0	pCi/l	13.4		105	85-115			
Zinc	102	0.50	50	ug/L	100		102	85-115			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73110 - EPA 200.8											
Duplicate (AF73110-DUP1)		**Source: 17F0551-02**			Prepared: 06/05/17 Analyzed: 06/08/17						
Aluminum	77.5	8.0	50	ug/L		81.1			4.43	20	
Antimony	7.89	0.080	6.0	ug/L		7.99			1.20	20	
Arsenic	1.30	0.80	2.0	ug/L		1.55			17.4	20	J
Barium	25.3	0.20	100	ug/L		26.1			3.34	20	J
Beryllium	ND	0.080	1.0	ug/L		ND				20	U
Cadmium	ND	0.20	1.0	ug/L		ND				20	U
Chromium	1.29	0.32	10	ug/L		1.42			10.1	20	J
Copper	70.3	0.20	50	ug/L		73.4			4.41	20	
Lead	0.525	0.080	5.0	ug/L		0.520			0.956	20	J
Manganese	23.9	0.20	20	ug/L		24.9			3.86	20	
Nickel	1.99	0.24	10	ug/L		2.08			4.71	20	J
Selenium	ND	0.80	5.0	ug/L		ND				20	U
Silver	ND	0.20	10	ug/L		ND				20	U
Thallium	ND	0.20	1.0	ug/L		ND				20	U
Uranium	ND	0.080	1.0	pCi/l		ND				20	U
Zinc	76.9	2.0	50	ug/L		79.2			2.91	20	
Matrix Spike (AF73110-MS1)		**Source: 17F0551-02**			Prepared: 06/05/17 Analyzed: 06/08/17						
Aluminum	600	8.0	50	ug/L	520	81.1	99.8	70-130			
Antimony	28.1	0.080	6.0	ug/L	20.0	7.99	101	70-130			
Arsenic	21.8	0.80	2.0	ug/L	20.0	1.55	101	70-130			
Barium	44.2	0.20	100	ug/L	20.0	26.1	90.4	70-130			J
Beryllium	21.1	0.080	1.0	ug/L	20.0	ND	106	70-130			
Cadmium	19.2	0.20	1.0	ug/L	20.0	ND	96.0	70-130			
Chromium	21.4	0.32	10	ug/L	20.0	1.42	99.8	70-130			
Copper	88.6	0.20	50	ug/L	20.0	73.4	76.0	70-130			
Lead	20.4	0.080	5.0	ug/L	20.0	0.520	99.2	70-130			
Manganese	43.8	0.20	20	ug/L	20.0	24.9	94.7	70-130			
Nickel	22.6	0.24	10	ug/L	20.0	2.08	102	70-130			
Selenium	23.9	0.80	5.0	ug/L	20.0	ND	119	70-130			
Silver	19.4	0.20	10	ug/L	20.0	ND	97.2	70-130			
Thallium	19.9	0.20	1.0	ug/L	20.0	ND	99.4	70-130			
Uranium	14.0	0.080	1.0	pCi/l	13.4	ND	104	70-130			
Zinc	172	2.0	50	ug/L	100	79.2	92.5	70-130			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Matrix Spike (AF73110-MS2) **Source: 17E2649-01** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	554	2.0	50	ug/L	520	109	85.6	70-130			
Antimony	21.0	0.020	6.0	ug/L	20.0	0.490	103	70-130			
Arsenic	20.3	0.20	2.0	ug/L	20.0	0.391	99.7	70-130			
Barium	72.3	0.050	100	ug/L	20.0	53.0	96.3	70-130			J
Beryllium	19.2	0.020	1.0	ug/L	20.0	ND	95.9	70-130			
Cadmium	18.9	0.050	1.0	ug/L	20.0	ND	94.5	70-130			
Chromium	18.9	0.080	10	ug/L	20.0	2.18	83.6	70-130			
Copper	682	0.050	50	ug/L	20.0	648	171	70-130			QM-4X
Lead	707	0.020	5.0	ug/L	20.0	666	209	70-130			QM-4X
Manganese	20.9	0.050	20	ug/L	20.0	2.06	94.1	70-130			
Nickel	23.9	0.060	10	ug/L	20.0	5.82	90.5	70-130			
Selenium	19.1	0.20	5.0	ug/L	20.0	0.227	94.4	70-130			
Silver	18.4	0.050	10	ug/L	20.0	0.135	91.2	70-130			
Thallium	17.8	0.050	1.0	ug/L	20.0	ND	89.2	70-130			
Uranium	12.9	0.020	1.0	pCi/l	13.4	0.106	95.5	70-130			
Zinc	216	0.50	50	ug/L	100	123	93.1	70-130			

Matrix Spike Dup (AF73110-MSD1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	599	8.0	50	ug/L	520	81.1	99.6	70-130	0.129	20	
Antimony	28.4	0.080	6.0	ug/L	20.0	7.99	102	70-130	1.10	20	
Arsenic	21.7	0.80	2.0	ug/L	20.0	1.55	101	70-130	0.641	20	
Barium	45.0	0.20	100	ug/L	20.0	26.1	94.5	70-130	1.86	20	J
Beryllium	21.0	0.080	1.0	ug/L	20.0	ND	105	70-130	0.699	20	
Cadmium	20.1	0.20	1.0	ug/L	20.0	ND	101	70-130	4.74	20	
Chromium	22.4	0.32	10	ug/L	20.0	1.42	105	70-130	4.62	20	
Copper	90.6	0.20	50	ug/L	20.0	73.4	86.0	70-130	2.22	20	
Lead	20.3	0.080	5.0	ug/L	20.0	0.520	98.8	70-130	0.364	20	
Manganese	44.7	0.20	20	ug/L	20.0	24.9	99.0	70-130	1.97	20	
Nickel	22.9	0.24	10	ug/L	20.0	2.08	104	70-130	1.44	20	
Selenium	23.7	0.80	5.0	ug/L	20.0	ND	118	70-130	0.684	20	
Silver	19.5	0.20	10	ug/L	20.0	ND	97.7	70-130	0.565	20	
Thallium	19.7	0.20	1.0	ug/L	20.0	ND	98.6	70-130	0.894	20	
Uranium	13.9	0.080	1.0	pCi/l	13.4	ND	104	70-130	0.520	20	
Zinc	176	2.0	50	ug/L	100	79.2	96.8	70-130	2.52	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AE74270 - General Preparation											
Blank (AE74270-BLK1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L							U
LCS (AE74270-BS1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.181	0.030	0.050	mg/L	0.200		90.5	80-120			
LCS Dup (AE74270-BSD1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.185	0.030	0.050	mg/L	0.200		92.6	80-120	2.22	20	
Duplicate (AE74270-DUP1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L		ND				20	U
Matrix Spike (AE74270-MS1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.169	0.030	0.050	mg/L	0.200	ND	84.4	80-120			
Matrix Spike Dup (AE74270-MSD1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.173	0.030	0.050	mg/L	0.200	ND	86.5	80-120	2.38	20	
Batch AF73080 - General Prep (DU)											
Duplicate (AF73080-DUP1)		**Source: 17F0174-01**			Prepared & Analyzed: 06/02/17						
Turbidity	0.100	0.050	0.10	NTU		0.0900			10.5	15	
Batch AF73107 - General Preparation											
Blank (AF73107-BLK1)					Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L							U

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73107 - General Preparation											
LCS (AF73107-BS1)					Prepared & Analyzed: 06/05/17						
Perchlorate	24.6	0.90	4.0	ug/L	25.0		98.4	85-115			
Duplicate (AF73107-DUP1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L		ND				15	U
Matrix Spike (AF73107-MS1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.1	0.90	4.0	ug/L	25.0	ND	100	70-130			
Matrix Spike Dup (AF73107-MSD1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.0	0.90	4.0	ug/L	25.0	ND	99.9	70-130	0.304	15	
Batch AF73128 - General Preparation											
Duplicate (AF73128-DUP1)		**Source: 17F0185-01**			Prepared & Analyzed: 06/02/17						
pH	7.06	1.68	1.68	pH Units		7.05			0.142	20	T-14
Specific Conductance (EC)	1550	1.0	20	umhos/cm		1550			0.00	5	
Batch AF73148 - Metals Digest											
Blank (AF73148-BLK1)					Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	ND	1	5	mg/L							U
Duplicate (AF73148-DUP1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	394	1	5	mg/L		385			2.45	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73199 - General Preparation											
Blank (AF73199-BLK1)					Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	ND	5.0	10	mg/L							U
Duplicate (AF73199-DUP1)		**Source: 17E2652-01**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	277	5.0	10	mg/L		255			8.27	15	
Duplicate (AF73199-DUP2)		**Source: 17F0169-04**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	348	5.0	10	mg/L		357			2.65	15	
Batch AF73235 - General Preparation											
Duplicate (AF73235-DUP1)		**Source: 17F0395-03**			Prepared & Analyzed: 06/09/17						
Carbonate	ND	1.0	5.0	mg/L		ND				20	U
Bicarbonate	59.8	1.0	5.0	mg/L		61.0			2.02	20	
Hydroxide	ND	1.0	5.0	mg/L		ND				5	U
Total Alkalinity as CaCO3	49.0	1.0	5.0	mg/L		50.0			2.02	20	

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73140 - General Preparation											
Blank (AF73140-BLK1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L							U
LCS (AF73140-BS1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.208	0.0020	0.10	mg/L	0.200		104	85-115			
Duplicate (AF73140-DUP1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L		ND				25	U
Matrix Spike (AF73140-MS1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.223	0.0020	0.10	mg/L	0.200	ND	111	85-115			
Matrix Spike (AF73140-MS2)		**Source: 17F0343-01**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.205	0.0020	0.10	mg/L	0.200	0.0210	92.2	85-115			
Matrix Spike Dup (AF73140-MSD1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.220	0.0020	0.10	mg/L	0.200	ND	110	85-115	1.19	25	

Anions by EPA Method 300.0 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73063 - General Preparation											
Blank (AF73063-BLK1)					Prepared & Analyzed: 06/02/17						
Chloride	ND	0.10	0.50	mg/L							U
Nitrite as N	ND	0.050	0.40	mg/L							U
Fluoride	ND	0.070	0.10	mg/L							U
Sulfate as SO4	ND	0.20	0.50	mg/L							U
Nitrate as N	ND	0.040	0.40	mg/L							U
LCS (AF73063-BS1)					Prepared & Analyzed: 06/02/17						
Sulfate as SO4	22.1	0.20	0.50	mg/L	22.2		99.3	90-110			
Fluoride	5.69	0.070	0.10	mg/L	5.56		102	90-110			
Chloride	11.0	0.10	0.50	mg/L	11.1		99.4	90-110			
Nitrate as N	5.62	0.040	0.40	mg/L	5.56		101	90-110			
Nitrite as N	5.46	0.050	0.40	mg/L	5.56		98.2	90-110			
Duplicate (AF73063-DUP1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Sulfate as SO4	ND	0.20	0.50	mg/L		ND				20	U
Nitrate as N	0.113	0.040	0.40	mg/L		0.114			1.39	20	J
Chloride	2.23	0.10	0.50	mg/L		2.27			1.51	20	
Nitrite as N	ND	0.050	0.40	mg/L		ND				20	U
Fluoride	ND	0.070	0.10	mg/L		ND				20	U
Matrix Spike (AF73063-MS1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Fluoride	5.65	0.070	0.10	mg/L	5.56	ND	102	80-120			
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.5	80-120			
Nitrite as N	5.05	0.050	0.40	mg/L	5.56	ND	90.9	80-120			
Nitrate as N	6.21	0.040	0.40	mg/L	5.56	0.114	110	80-120			
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	105	80-120			
Matrix Spike (AF73063-MS2)		**Source: 17F0125-01**			Prepared & Analyzed: 06/02/17						
Sulfate as SO4	30.0	1.0	2.5	mg/L	22.2	10.2	89.2	80-120			
Nitrite as N	5.18	0.25	2.0	mg/L	5.56	ND	93.3	80-120			
Chloride	54.2	0.50	2.5	mg/L	11.1	43.0	101	80-120			
Fluoride	5.33	0.35	0.50	mg/L	5.56	ND	96.0	80-120			
Nitrate as N	5.76	0.20	2.0	mg/L	5.56	ND	104	80-120			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Anions by EPA Method 300.0 - Quality Control

Batch AF73063 - General Preparation

Matrix Spike Dup (AF73063-MSD1) **Source: 17F0130-01** Prepared & Analyzed: 06/02/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate as N	6.20	0.040	0.40	mg/L	5.56	0.114	110	80-120	0.121	20	
Nitrite as N	5.04	0.050	0.40	mg/L	5.56	ND	90.8	80-120	0.0881	20	
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.4	80-120	0.0711	20	
Fluoride	5.64	0.070	0.10	mg/L	5.56	ND	101	80-120	0.158	20	
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	104	80-120	0.0561	20	

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Blank (AF73226-BLK1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	ND	0.30	0.50	ug/L							U
Carbon tetrachloride	ND	0.30	0.50	ug/L							U
Chlorobenzene	ND	0.50	0.50	ug/L							U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,1-Dichloroethane	ND	0.40	0.50	ug/L							U
1,2-Dichloroethane	ND	0.50	0.50	ug/L							U
1,1-Dichloroethene	ND	0.30	0.50	ug/L							U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
1,2-Dichloropropane	ND	0.50	0.50	ug/L							U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L							U
Ethylbenzene	ND	0.50	0.50	ug/L							U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L							U
Methylene chloride	ND	0.40	0.50	ug/L							U
Styrene	ND	0.50	0.50	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L							U
Tetrachloroethene	ND	0.50	0.50	ug/L							U
Toluene	ND	0.30	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L							U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L							U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L							U
Trichloroethene	ND	0.50	0.50	ug/L							U
Trichlorofluoromethane	ND	0.50	5.0	ug/L							U
Trichlorotrifluoroethane	ND	0.40	10	ug/L							U
Vinyl chloride	ND	0.50	0.50	ug/L							U
Xylenes (total)	ND	0.50	0.50	ug/L							U
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*21.6*			*ug/L*	*25.0*		*86.4*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.6*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS (AF73226-BS1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.29	0.30	0.50	ug/L	5.00		85.8	70-130			
Carbon tetrachloride	3.71	0.30	0.50	ug/L	5.00		74.2	70-130			
Chlorobenzene	4.66	0.50	0.50	ug/L	5.00		93.2	70-130			
1,2-Dichlorobenzene	4.67	0.50	0.50	ug/L	5.00		93.4	70-130			
1,4-Dichlorobenzene	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethane	4.16	0.40	0.50	ug/L	5.00		83.2	70-130			
1,2-Dichloroethane	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethene	3.62	0.30	0.50	ug/L	5.00		72.4	70-130			
cis-1,2-Dichloroethene	4.27	0.40	0.50	ug/L	5.00		85.4	70-130			
trans-1,2-Dichloroethene	3.93	0.40	0.50	ug/L	5.00		78.6	70-130			
1,2-Dichloropropane	4.56	0.50	0.50	ug/L	5.00		91.2	70-130			
Ethylbenzene	4.49	0.50	0.50	ug/L	5.00		89.8	70-130			
Methyl tert-butyl ether	3.93	0.50	3.0	ug/L	5.00		78.6	70-130			
Methylene chloride	3.97	0.40	0.50	ug/L	5.00		79.4	70-130			
Styrene	4.62	0.50	0.50	ug/L	5.00		92.4	70-130			
1,1,2,2-Tetrachloroethane	4.74	0.50	0.50	ug/L	5.00		94.8	70-130			
Tetrachloroethene	4.57	0.50	0.50	ug/L	5.00		91.4	70-130			
Toluene	4.48	0.30	0.50	ug/L	5.00		89.6	70-130			
1,2,4-Trichlorobenzene	4.77	0.40	0.50	ug/L	5.00		95.4	70-130			
1,1,1-Trichloroethane	4.01	0.40	0.50	ug/L	5.00		80.2	70-130			
1,1,2-Trichloroethane	4.70	0.50	0.50	ug/L	5.00		94.0	70-130			
Trichloroethene	4.36	0.50	0.50	ug/L	5.00		87.2	70-130			
Trichlorofluoromethane	4.24	0.50	5.0	ug/L	5.00		84.8	70-130			J
Trichlorotrifluoroethane	4.18	0.40	10	ug/L	5.00		83.6	70-130			J
Vinyl chloride	4.06	0.50	0.50	ug/L	5.00		81.2	70-130			
Xylenes (total)	13.6	0.50	0.50	ug/L	15.0		90.5	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*105*	*70-130*			
Surrogate: Dibromofluoromethane	*22.2*			*ug/L*	*25.0*		*88.9*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.4*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS Dup (AF73226-BSD1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.55	0.30	0.50	ug/L	5.00		91.0	70-130	5.88	30	
Carbon tetrachloride	4.16	0.30	0.50	ug/L	5.00		83.2	70-130	11.4	30	
Chlorobenzene	4.82	0.50	0.50	ug/L	5.00		96.4	70-130	3.38	30	
1,2-Dichlorobenzene	4.85	0.50	0.50	ug/L	5.00		97.0	70-130	3.78	30	
1,4-Dichlorobenzene	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	3.51	30	
1,1-Dichloroethane	4.57	0.40	0.50	ug/L	5.00		91.4	70-130	9.39	30	
1,2-Dichloroethane	4.52	0.50	0.50	ug/L	5.00		90.4	70-130	0.889	30	
1,1-Dichloroethene	4.04	0.30	0.50	ug/L	5.00		80.8	70-130	11.0	30	
cis-1,2-Dichloroethene	4.66	0.40	0.50	ug/L	5.00		93.2	70-130	8.73	30	
trans-1,2-Dichloroethene	4.35	0.40	0.50	ug/L	5.00		87.0	70-130	10.1	30	
1,2-Dichloropropane	4.57	0.50	0.50	ug/L	5.00		91.4	70-130	0.219	30	
Ethylbenzene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	5.21	30	
Methyl tert-butyl ether	4.04	0.50	3.0	ug/L	5.00		80.8	70-130	2.76	30	
Methylene chloride	4.28	0.40	0.50	ug/L	5.00		85.6	70-130	7.52	30	
Styrene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	2.35	30	
1,1,2,2-Tetrachloroethane	4.86	0.50	0.50	ug/L	5.00		97.2	70-130	2.50	30	
Tetrachloroethene	4.70	0.50	0.50	ug/L	5.00		94.0	70-130	2.80	30	
Toluene	4.67	0.30	0.50	ug/L	5.00		93.4	70-130	4.15	30	
1,2,4-Trichlorobenzene	4.92	0.40	0.50	ug/L	5.00		98.4	70-130	3.10	30	
1,1,1-Trichloroethane	4.44	0.40	0.50	ug/L	5.00		88.8	70-130	10.2	30	
1,1,2-Trichloroethane	4.67	0.50	0.50	ug/L	5.00		93.4	70-130	0.640	30	
Trichloroethene	4.61	0.50	0.50	ug/L	5.00		92.2	70-130	5.57	30	
Trichlorofluoromethane	4.66	0.50	5.0	ug/L	5.00		93.2	70-130	9.44	30	J
Trichlorotrifluoroethane	4.68	0.40	10	ug/L	5.00		93.6	70-130	11.3	30	J
Vinyl chloride	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	13.3	30	
Xylenes (total)	14.2	0.50	0.50	ug/L	15.0		94.7	70-130	4.53	30	
Surrogate: Bromofluorobenzene	*26.1*			*ug/L*	*25.0*		*104*	*70-130*			
Surrogate: Dibromofluoromethane	*22.7*			*ug/L*	*25.0*		*90.8*	*70-130*			
Surrogate: Toluene-d8	*24.0*			*ug/L*	*25.0*		*96.0*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:58

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS1) **Source: 17F0147-01** Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	5.00	0.30	0.50	ug/L	5.00	ND	100	70-130			
Carbon tetrachloride	4.56	0.30	0.50	ug/L	5.00	ND	91.2	70-130			
Chlorobenzene	5.09	0.50	0.50	ug/L	5.00	ND	102	70-130			
1,2-Dichlorobenzene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
1,4-Dichlorobenzene	4.72	0.50	0.50	ug/L	5.00	ND	94.4	70-130			
1,1-Dichloroethane	5.31	0.40	0.50	ug/L	5.00	ND	106	70-130			
1,2-Dichloroethane	4.76	0.50	0.50	ug/L	5.00	ND	95.2	70-130			
1,1-Dichloroethene	5.66	0.30	0.50	ug/L	5.00	0.390	105	70-130			
cis-1,2-Dichloroethene	5.36	0.40	0.50	ug/L	5.00	ND	107	70-130			
trans-1,2-Dichloroethene	5.21	0.40	0.50	ug/L	5.00	ND	104	70-130			
1,2-Dichloropropane	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
Ethylbenzene	5.05	0.50	0.50	ug/L	5.00	ND	101	70-130			
Methyl tert-butyl ether	4.14	0.50	3.0	ug/L	5.00	ND	82.8	70-130			
Methylene chloride	4.61	0.40	0.50	ug/L	5.00	ND	92.2	70-130			
Styrene	4.83	0.50	0.50	ug/L	5.00	ND	96.6	70-130			
1,1,2,2-Tetrachloroethane	4.85	0.50	0.50	ug/L	5.00	ND	97.0	70-130			
Tetrachloroethene	5.24	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	5.21	0.30	0.50	ug/L	5.00	ND	104	70-130			
1,2,4-Trichlorobenzene	4.65	0.40	0.50	ug/L	5.00	ND	93.0	70-130			
1,1,1-Trichloroethane	6.12	0.40	0.50	ug/L	5.00	0.940	104	70-130			
1,1,2-Trichloroethane	4.93	0.50	0.50	ug/L	5.00	ND	98.6	70-130			
Trichloroethene	5.11	0.50	0.50	ug/L	5.00	ND	102	70-130			
Trichlorofluoromethane	5.95	0.50	5.0	ug/L	5.00	ND	119	70-130			
Trichlorotrifluoroethane	6.07	0.40	10	ug/L	5.00	ND	121	70-130			J
Vinyl chloride	5.70	0.50	0.50	ug/L	5.00	ND	114	70-130			
Xylenes (total)	15.2	0.50	0.50	ug/L	15.0	ND	101	70-130			
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*23.1*			*ug/L*	*25.0*		*92.5*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.7*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS2) **Source: 17F0149-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.86	0.30	0.50	ug/L	5.00	ND	97.2	70-130			
Carbon tetrachloride	4.36	0.30	0.50	ug/L	5.00	ND	87.2	70-130			
Chlorobenzene	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
1,2-Dichlorobenzene	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
1,4-Dichlorobenzene	4.60	0.50	0.50	ug/L	5.00	ND	92.0	70-130			
1,1-Dichloroethane	5.26	0.40	0.50	ug/L	5.00	ND	105	70-130			
1,2-Dichloroethane	4.70	0.50	0.50	ug/L	5.00	ND	94.0	70-130			
1,1-Dichloroethene	9.60	0.30	0.50	ug/L	5.00	4.50	102	70-130			
cis-1,2-Dichloroethene	5.47	0.40	0.50	ug/L	5.00	ND	109	70-130			
trans-1,2-Dichloroethene	4.98	0.40	0.50	ug/L	5.00	ND	99.6	70-130			
1,2-Dichloropropane	4.77	0.50	0.50	ug/L	5.00	ND	95.4	70-130			
Ethylbenzene	4.94	0.50	0.50	ug/L	5.00	ND	98.8	70-130			
Methyl tert-butyl ether	3.99	0.50	3.0	ug/L	5.00	ND	79.8	70-130			
Methylene chloride	4.34	0.40	0.50	ug/L	5.00	ND	86.8	70-130			
Styrene	4.69	0.50	0.50	ug/L	5.00	ND	93.8	70-130			
1,1,2,2-Tetrachloroethane	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
Tetrachloroethene	5.26	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	4.99	0.30	0.50	ug/L	5.00	ND	99.8	70-130			
1,2,4-Trichlorobenzene	4.67	0.40	0.50	ug/L	5.00	ND	93.4	70-130			
1,1,1-Trichloroethane	9.00	0.40	0.50	ug/L	5.00	3.91	102	70-130			
1,1,2-Trichloroethane	4.79	0.50	0.50	ug/L	5.00	ND	95.8	70-130			
Trichloroethene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
Trichlorofluoromethane	5.70	0.50	5.0	ug/L	5.00	ND	114	70-130			
Trichlorotrifluoroethane	6.01	0.40	10	ug/L	5.00	ND	120	70-130			J
Vinyl chloride	5.75	0.50	0.50	ug/L	5.00	ND	115	70-130			
Xylenes (total)	15.0	0.50	0.50	ug/L	15.0	ND	99.7	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*106*	*70-130*			
Surrogate: Dibromofluoromethane	*24.0*			*ug/L*	*25.0*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*25.4*			*ug/L*	*25.0*		*102*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73122 - SVOAs in Water GC											
Blank (AF73122-BLK1)					Prepared: 06/05/17 Analyzed: 06/10/17						
Endrin	ND	0.030	0.10	ug/L							U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L							U
Heptachlor	ND	0.010	0.010	ug/L							U
Heptachlor epoxide	ND	0.010	0.010	ug/L							U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L							U
Hexachlorobenzene	ND	0.010	0.50	ug/L							U
Methoxychlor	ND	0.020	10	ug/L							U
PCB-1016	ND	0.030	0.50	ug/L							U
PCB-1221	ND	0.030	0.50	ug/L							U
PCB-1232	ND	0.030	0.50	ug/L							U
PCB-1242	ND	0.030	0.50	ug/L							U
PCB-1248	ND	0.030	0.50	ug/L							U
PCB-1254	ND	0.030	0.50	ug/L							U
PCB-1260	ND	0.030	0.50	ug/L							U
Total PCBs	ND	0.30	0.50	ug/L							U
Toxaphene	ND	0.40	1.0	ug/L							U
Chlordane (tech)	ND	0.030	0.10	ug/L							U
Surrogate: Dibutylchlorendate	*0.704*			*ug/L*	*0.978*		*72.0*	*70-130*			
LCS (AF73122-BS1)					Prepared: 06/05/17 Analyzed: 06/10/17						
Endrin	0.250	0.030	0.10	ug/L	0.280		89.4	70-130			
HCH-gamma (Lindane)	0.221	0.010	0.20	ug/L	0.280		78.8	70-130			
Heptachlor	0.217	0.010	0.010	ug/L	0.280		77.5	70-130			
Heptachlor epoxide	0.231	0.010	0.010	ug/L	0.280		82.5	70-130			
Hexachlorobenzene	0.222	0.010	0.50	ug/L	0.280		79.3	70-130			J
Hexachlorocyclopentadiene	0.269	0.040	1.0	ug/L	0.560		48.1	15-90			J
Methoxychlor	0.239	0.020	10	ug/L	0.280		85.5	70-130			J
Surrogate: Dibutylchlorendate	*0.828*			*ug/L*	*0.978*		*84.6*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73122 - SVOAs in Water GC

LCS Dup (AF73122-BSD1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.269	0.030	0.10	ug/L	0.280		96.1	70-130	7.24	25	
HCH-gamma (Lindane)	0.242	0.010	0.20	ug/L	0.280		86.5	70-130	9.25	25	
Heptachlor	0.234	0.010	0.010	ug/L	0.280		83.5	70-130	7.49	25	
Heptachlor epoxide	0.249	0.010	0.010	ug/L	0.280		89.0	70-130	7.65	25	
Hexachlorocyclopentadiene	0.305	0.040	1.0	ug/L	0.560		54.4	15-90	12.4	50	J
Hexachlorobenzene	0.207	0.010	0.50	ug/L	0.280		74.1	70-130	6.86	25	J
Methoxychlor	0.258	0.020	10	ug/L	0.280		92.2	70-130	7.61	25	J
Surrogate: Dibutylchlorendate	*0.866*			*ug/L*	*0.978*		*88.6*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73181 - SVOAs in Water GC

Blank (AF73181-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	ND	0.50	1.0	ug/L							U
Atrazine	ND	0.30	0.50	ug/L							U
Molinate	ND	0.20	2.0	ug/L							U
Simazine	ND	0.30	1.0	ug/L							U
Thiobencarb	ND	0.20	1.0	ug/L							U
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.61*			*ug/L*	*2.00*		*80.5*	*70-130*			

LCS (AF73181-BS1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.67	0.50	1.0	ug/L	2.80		95.3	70-130			
Atrazine	2.22	0.30	0.50	ug/L	2.80		79.4	70-130			
Molinate	2.02	0.20	2.0	ug/L	2.80		72.2	70-130			
Simazine	2.22	0.30	1.0	ug/L	2.80		79.4	70-130			
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.63*			*ug/L*	*2.00*		*81.4*	*70-130*			

LCS Dup (AF73181-BSD1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.16	0.50	1.0	ug/L	2.80		77.0	70-130	21.3	30	
Atrazine	2.15	0.30	0.50	ug/L	2.80		76.8	70-130	3.30	30	
Molinate	2.09	0.20	2.0	ug/L	2.80		74.8	70-130	3.42	30	
Simazine	2.23	0.30	1.0	ug/L	2.80		79.5	70-130	0.126	30	
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130	0.00691	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.58*			*ug/L*	*2.00*		*79.2*	*70-130*			

Matrix Spike (AF73181-MS1) **Source: 17F0087-01** Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.34	0.50	1.0	ug/L	2.80	ND	83.6	65-135			
Atrazine	2.42	0.30	0.50	ug/L	2.80	ND	86.3	65-135			
Molinate	2.15	0.20	2.0	ug/L	2.80	ND	77.0	65-135			
Simazine	2.48	0.30	1.0	ug/L	2.80	ND	88.5	65-135			
Thiobencarb	2.26	0.20	1.0	ug/L	2.80	ND	80.7	65-135			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.77*			*ug/L*	*2.00*		*88.6*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73181 - SVOAs in Water GC

Matrix Spike Dup (AF73181-MSD1) **Source: 17F0087-01** Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.09	0.50	1.0	ug/L	2.80	ND	74.5	65-135	11.5	30	
Atrazine	2.17	0.30	0.50	ug/L	2.80	ND	77.6	65-135	10.7	30	
Molinate	2.00	0.20	2.0	ug/L	2.80	ND	71.3	65-135	7.69	30	
Simazine	2.19	0.30	1.0	ug/L	2.80	ND	78.4	65-135	12.1	30	
Thiobencarb	2.15	0.20	1.0	ug/L	2.80	ND	76.7	65-135	5.19	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.48*			*ug/L*	*2.00*		*74.0*	*70-130*			

Organic Analytes by EPA Method 504.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73284 - EPA 504.1											
Blank (AF73284-BLK1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L							U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L							U
LCS (AF73284-BS1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.321	0.0040	0.010	ug/L	0.250		129	70-130			
1,2-Dibromoethane (EDB)	0.280	0.0050	0.020	ug/L	0.250		112	70-130			
LCS Dup (AF73284-BSD1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.213	0.0040	0.010	ug/L	0.250		85.3	70-130	40.4	25	QL-04
1,2-Dibromoethane (EDB)	0.205	0.0050	0.020	ug/L	0.250		81.8	70-130	31.0	25	QL-04
Matrix Spike (AF73284-MS1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.240	0.0040	0.010	ug/L	0.250	ND	96.2	70-130			
1,2-Dibromoethane (EDB)	0.226	0.0050	0.020	ug/L	0.250	ND	90.5	70-130			
Matrix Spike Dup (AF73284-MSD1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.253	0.0040	0.010	ug/L	0.250	ND	101	70-130	4.99	25	
1,2-Dibromoethane (EDB)	0.235	0.0050	0.020	ug/L	0.250	ND	93.9	70-130	3.78	25	

Chlorinated Acids by EPA Method 515.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73233 - Herbicides											
Blank (AF73233-BLK1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	ND	0.40	2.0	ug/L							U
2,4-D	ND	0.80	10	ug/L							U
Dalapon	ND	6.0	10	ug/L							U
Dinoseb	ND	0.80	2.0	ug/L							U
Pentachlorophenol	ND	0.20	0.20	ug/L							U
Picloram	ND	0.50	1.0	ug/L							U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L							U
Surrogate: DCAA	*13.5*			*ug/L*	*15.0*		*89.8*	*70-130*			
LCS (AF73233-BS1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.04	0.40	2.0	ug/L	1.92		107	70-130			
2,4-D	2.18	0.80	10	ug/L	1.92		113	48-124			J
Dalapon	12.4	6.0	10	ug/L	12.5		99.6	40-112			
Dinoseb	4.85	0.80	2.0	ug/L	6.42		75.5	20-105			
Pentachlorophenol	1.08	0.20	0.20	ug/L	0.960		113	70-130			
Picloram	1.14	0.50	1.0	ug/L	0.960		119	70-130			
2,4,5-TP (Silvex)	0.927	0.50	1.0	ug/L	0.960		96.6	70-130			J
Surrogate: DCAA	*12.7*			*ug/L*	*15.0*		*84.6*	*70-130*			
LCS Dup (AF73233-BSD1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.00	0.40	2.0	ug/L	1.92		104	70-130	2.40	50	
2,4-D	2.20	0.80	10	ug/L	1.92		114	48-124	1.06	50	J
Dalapon	13.0	6.0	10	ug/L	12.5		104	40-112	4.70	50	
Dinoseb	5.56	0.80	2.0	ug/L	6.42		86.6	20-105	13.7	50	
Pentachlorophenol	1.07	0.20	0.20	ug/L	0.960		111	70-130	1.72	50	
Picloram	1.07	0.50	1.0	ug/L	0.960		111	70-130	6.59	50	
2,4,5-TP (Silvex)	1.04	0.50	1.0	ug/L	0.960		108	70-130	11.0	50	
Surrogate: DCAA	*14.8*			*ug/L*	*15.0*		*98.4*	*70-130*			

Chlorinated Acids by EPA Method 515.1 - Quality Control

Batch AF73233 - Herbicides

Matrix Spike (AF73233-MS1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.05	0.40	2.0	ug/L	1.92	ND	107	70-130			
2,4-D	2.25	0.80	10	ug/L	1.92	ND	117	48-124			J
Dalapon	12.3	6.0	10	ug/L	12.5	ND	98.8	40-112			
Dinoseb	6.04	0.80	2.0	ug/L	6.42	ND	94.1	20-105			
Pentachlorophenol	1.03	0.20	0.20	ug/L	0.960	ND	107	70-130			
Picloram	0.949	0.50	1.0	ug/L	0.960	ND	98.9	70-130			J
2,4,5-TP (Silvex)	1.07	0.50	1.0	ug/L	0.960	ND	111	70-130			
Surrogate: DCAA	*15.6*			*ug/L*	*15.0*		*104*	*70-130*			

Matrix Spike Dup (AF73233-MSD1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.07	0.40	2.0	ug/L	1.92	ND	108	70-130	0.779	50	
2,4-D	2.06	0.80	10	ug/L	1.92	ND	108	48-124	8.44	50	J
Dalapon	10.7	6.0	10	ug/L	12.5	ND	85.8	40-112	14.2	50	
Dinoseb	5.26	0.80	2.0	ug/L	6.42	ND	82.0	20-105	13.8	50	
Pentachlorophenol	0.914	0.20	0.20	ug/L	0.960	ND	95.3	70-130	12.0	50	
Picloram	1.01	0.50	1.0	ug/L	0.960	ND	106	70-130	6.54	50	
2,4,5-TP (Silvex)	0.958	0.50	1.0	ug/L	0.960	ND	99.8	70-130	10.8	50	J
Surrogate: DCAA	*14.4*			*ug/L*	*15.0*		*95.9*	*70-130*			

Carbamates by EPA Method 531.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73245 - HPLC											
Blank (AF73245-BLK1)					Prepared & Analyzed: 06/12/17						
Carbofuran	ND	0.90	5.0	ug/L							U
Oxamyl	ND	1.0	20	ug/L							U
LCS (AF73245-BS1)					Prepared & Analyzed: 06/12/17						
Carbofuran	19.0	0.90	5.0	ug/L	20.0		94.9	80-120			
Oxamyl	21.2	1.0	20	ug/L	20.0		106	80-120			
LCS Dup (AF73245-BSD1)					Prepared & Analyzed: 06/12/17						
Carbofuran	22.2	0.90	5.0	ug/L	20.0		111	80-120	15.6	20	
Oxamyl	23.7	1.0	20	ug/L	20.0		119	80-120	11.1	20	
Matrix Spike (AF73245-MS1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	20.9	0.90	5.0	ug/L	20.0	ND	105	65-135			
Oxamyl	24.3	1.0	20	ug/L	20.0	ND	122	65-135			
Matrix Spike Dup (AF73245-MSD1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	24.1	0.90	5.0	ug/L	20.0	ND	120	65-135	14.0	20	
Oxamyl	24.5	1.0	20	ug/L	20.0	ND	122	65-135	0.591	20	

Endothall by EPA Method 548.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73184 - EPA 548.1											
Blank (AF73184-BLK1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	ND	20	45	ug/L							U
LCS (AF73184-BS1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	216	20	45	ug/L	200		108	80-120			
LCS Dup (AF73184-BSD1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	208	20	45	ug/L	200		104	80-120	3.81	30	
Matrix Spike (AF73184-MS1)		**Source: 17F0087-01**			Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	31.0	20	45	ug/L	200	ND	15.5	80-120			QM-07, J

Glyphosate by EPA Method 547 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73108 - HPLC											
Blank (AF73108-BLK1)					Prepared & Analyzed: 06/05/17						
Glyphosate	ND	3.0	25	ug/L							U
LCS (AF73108-BS1)					Prepared & Analyzed: 06/05/17						
Glyphosate	107	3.0	25	ug/L	120		89.1	70-130			
LCS Dup (AF73108-BSD1)					Prepared & Analyzed: 06/05/17						
Glyphosate	105	3.0	25	ug/L	120		87.7	70-130	1.54	30	
Matrix Spike (AF73108-MS1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	96.7	3.0	25	ug/L	120	ND	80.6	70-130			
Matrix Spike Dup (AF73108-MSD1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	106	3.0	25	ug/L	120	ND	88.1	70-130	8.89	30	

Diquat by EPA Method 549.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73099 - HPLC											
Blank (AF73099-BLK1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	ND	2.0	4.0	ug/L							U
LCS (AF73099-BS1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	16.4	2.0	4.0	ug/L	20.0		82.2	70-130			
LCS Dup (AF73099-BSD1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	17.6	2.0	4.0	ug/L	20.0		88.0	70-130	6.84	25	
Matrix Spike (AF73099-MS1)		**Source: 17F0087-01**			Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	18.9	2.0	4.0	ug/L	20.0	ND	94.6	70-130			

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration, detected but not quantified (DNQ).
QL-04	The LCS/LCSD RPD for this analyte was outside of established control limits. Batch accepted based on acceptable recovery for both LCS/LCSD.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
T-14	Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time.
U	Analyte included in analysis, but not detected at or above MDL.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

ASBESTOS TEM LABORATORIES, INC.

EPA 600/4-83 Drinking Water
Transmission Electron Microscopy
Analytical Report

Laboratory Job #349918

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429

ASBESTOS TEM LABORATORIES, INC

Certified by
CA DPH ELAP
Lab No. 1866

Jun/16/2017

David S. Pingatore
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

RE: LABORATORY JOB # 349918
Transmission electron microscopy analytical results for 1 water sample(s).
Job Site:
Job No.: 17F0147

Enclosed please find results for the TEM analysis of one or more water samples. The analytical procedures were performed according to EPA Method 100.2 for the analysis of asbestos in drinking water.

Prior to analysis, samples are checked for damage, disruption of any chain-of-custody seals, and completeness of accompanying paperwork. If no problems are found, samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Preparation of water samples is performed within a HEPA filtered, Class 100 air, laminar flow clean bench environment. Prior to filtration, water sample containers are ultrasonicated, and the exterior surfaces cleaned. An aliquot of water is drawn from the sample container and drawn through a special filtration apparatus and collected onto a mixed cellulose ester (MCE) or polycarbonate (PC) filter. The filters are removed from the apparatus and dried. A portion of each sample filter is sectioned, placed onto a glass microscope slide, and carbon coated. The filters are further sectioned and placed carbon side up onto 200-mesh copper TEM sample grids in a solvent bath until all filter material is dissolved. The TEM grids are removed and placed into labeled grid storage boxes.

TEM analysis is performed on a Philips EM-300 or CM-12 transmission electron microscope operating at 80 or 100 kV. Initially, the grid is scanned at low and medium magnification to insure proper sample loading, and coherence of the carbon support film. Then TEM grid openings are analyzed at a magnification of 10,000X. All fibers >10 um in length and exhibiting an aspect ratio >3:1 are analyzed. Scanning continues until either 100 asbestiform fibers >10um in length are counted, or an analytical sensitivity of 0.2 million fibers per liter (MFL) is achieved. Analyzed fibers are subjected to detailed morphological and selected area diffraction (SAED) analysis. Fibers indicated as asbestos, or potentially asbestos, are further analyzed by energy dispersive X-ray (EDX) analysis as needed. The number of asbestos fibers detected, and other analytical parameters, are then used to calculate the concentration of asbestos in MFL. The results are entered into a standard report format and reviewed by the analyst and the laboratory manager before release to the client.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY
ANALYTICAL REPORT

Contact: David S. Pingatore

Address: Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

Job Site / No. 17F0147

Report No.: **349918**

Date: Jun-16-17

Total Samples Analyzed: 1

Sample Collector:

CLIENT SAMPLE # **17F147-01**

Laboratory Sample # 1288-01173-001

SAMPLE LOCATION/DESCRIPTION

LGRS-03: Rotary Shallow [Water]

WATER SAMPLE DATA

Date/Time Collected	Jun-01-17	2:15 pm
Date/Time Lab Received	Jun-02-17	11:53 am
Date/Time Filtered	Jun-02-17	9:00 pm
Date/Time Analyzed	Jun-16-17	1:00 pm

Volume Submitted (ml)	1000
Volume Filtered (ml)	15
Filter & Pore Size	MCE0.22
UV/Ozone Treated:	YES

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		**OTHER**	
CHRYS	**AMPH**	**AMBIG**	**NON-ASB**
NSD	**NSD**	**NSD**	**NSD**

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	**AMPH**	**TOTAL**
< 0.2 MFL	**< 0.2 MFL**	**< 0.2 MFL**

COMMENTS

No Asbestos Detected

Filter Loading: MODERATE

SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	8
Grid Opening Area (mm2)	0.0088
Scan Area (mm2)	0.0704

Analytical Sensitivity	0.2 MFL
95% UCL	0.70 MFL
95% LCL	0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-14871
Grid Openings Scanned at 10,000X	8
Volume Filtered (ml)	300

Analytical Sensitivity	0.01 MFL
Asbestos Structure Concentration	<0.01 MFL

NOTATION KEY

Chrys. - Chrysotile Asbestos
Amph. - Amphibole Asbestos
NSD - No Structures Detected
1 mm = 1 millimeter

1 um = 1 micron = 0.001 mm
MFL = Millions of Fibers per Liter
UCL = Upper Confidence Level
LCL = Lower Confidence Level

Analyzed by Yang Zhang

Crystal Replogle

Reviewed by Crystal Replogle

ASBESTOS TEM LABORATORIES, INC. 600 BANCROFT WAY, STE. A, BERKELEY, CA 94710 (510) 704-8930
www.asbestostemlabs.com
With Offices in Reno, NV (775) 359-3377

349918

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0147

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Asbestos TEM Laboratories, Inc.
630 Bancroft Way
Berkeley, CA 94710
Phone :(510) 704-8930
Fax: (510) 704-8429
Terms: Net 30

Analysis	Due	Expires	Comments
17F0147-01 LGRS-03: Rotary Shallow [Water] Sampled 06/01/17 14:15			
Asbestos-DW SUB	06/16/17 12:00	06/03/17 14:15	6.9
Containers Supplied:			6.9
1L Amber- Unpres. (J) 1L Amber- Unpres. (K)			

☐ *Report to State*

System Name: ______________________ **Employed by:** ______________________

User ID: ______________________ **Sampler:** ______________________

System Number: ______________________

Released By	Date: 6/2/17	Received By	Date: 11:53 RECEIVED JUN 02 2017
Released By	Date	Received By	Date

Page 1 of 1

Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Suite 1
El Dorado Hills, CA 95762

June 14, 2017 Ceres ID: 11450

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482

The following report contains the results for the one drinking water sample received on June 7, 2017. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under Alpha Analytical Laboratories' project # 17F0147.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date &Time
11450-001	LGRS-03: Rotary Shallow 17F0147-01	6/7/2017	6/1/2017 14:15

Section II: Data Summary

EPA Method 1613B

Quality Assurance Sample **Method Blank**		**Date Received:** NA
	QC Batch #: 1610	**Date Extracted:** 6/12/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0147	**Sample Size:** 1.000 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.44	1.35	5.00		13C-2378-TCDD	103	31-137	
					CRS			
					37Cl4-2378-TCDD	91.3	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.

EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.

(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**	**QC Batch #:** 1610	**Date Received:** NA **Date Extracted:** 6/12/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0147	**Sample Size:** 1.000 L	

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	9.36	7.3-14.6	13C-2378-TCDD	104	25-141
			CRS		
			37Cl4-2378-TCDD	96.2	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: LGRS-03: Rotary Shallow 17F0147-01

Project ID:	17F0147	**Ceres Sample ID:**	11450-001	**Date Received:**	6/7/2017
		QC Batch #:	1610	**Date Extracted:**	6/12/2017
Date Collected:	6/1/2017	**Matrix:**	Drinking Water	**ZB-5MS Analysis:**	6/13/2017
Time Collected:	2:15 PM	**Sample Size:**	1.019 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.52	1.35	4.91		13C-2378-TCDD	101	31-137	
					CRS			
					37Cl4-2378-TCDD	92.7	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.

EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.

(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0147

SENDING LABORATORY:	RECEIVING LABORATORY:
Alpha Analytical Laboratories, Inc.	Ceres Labs
208 Mason St.	4919 Windplay Dr.
Ukiah, CA 95482	El Dorado Hills, CA 95762
Phone: (707)468-0401	Phone :(916) 932-5011
Fax: (707)468-5267	Fax: (916) 932-5017
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	Due	Expires	Comments
17F0147-01 LGRS-03: Rotary Shallow [Water] Sampled 06/01/17 14:15			
Dioxin 2378 TCDD DW 1613	06/16/17 12:00	06/01/18 14:15	

Containers Supplied:

1L Amber- Unpres. (AB) 1L Amber- Unpres. (AC)

☐ *Report to State*

System Name: ______ **Employed by:** ______

User ID: ______ **Sampler:** ______

System Number: ______

+QC

	6-2-17		6/7/17 09:51
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Sample Receipt Check List

Ceres ID: 11450	Date/Time: 6/7/17 09:51
Client Project ID: 17F0147	Received Temp: 3.7 °C Acceptable: [✓ Y] / N
Chain of Custody Relinquished by signed?	[✓ Y] / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	[✓ NA]
Unlabeled / Illegible Samples	Y / [✓ N]
Proper Containers:	[✓ Y] / N
Preservation Acceptable (Chemical or Temperature)?	[✓ Y] / N
Drinking Water, Sodium Thiosulfate present?	Y / [✓ N] / NA
Residual Cl?	Y / [✓ N]
Aqueous sample pH: 7	

List COC discrepancies:

6/7/17

List Damaged Samples:

6/7/17

Rev 7

Form A5.0

Effective Date: 1/27/17

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

eurofins
Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ANAB
ACCREDITED
ISO/IEC 17025
TESTING LABORATORY
AT-1807

Laboratory Report

for

Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482
Attention: David S. Pingatore
Fax: 707-468-5267

Date of Issue
06/21/2017
EUROFINS EATON ANALYTICAL, INC.

NELAP ACCREDITED
TNI
LABORATORY
ORELAP 4034

Report: 664409
Project: DRINKING
Group: ORGANICS - EPA 500's

M5B: Magnolia Busse

Project Manager

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Arizona	AZ0778	**Montana**	Cert 0035
Arkansas	Certified	**Nebraska**	Certified
California-Monrovia-ELAP	2813	**Nevada**	CA00006-2016
California-Colton- ELAP	2812	**New Hampshire ***	2959
California-Folsom- ELAP	2820	**New Jersey ***	CA 008
California-Fresno- ELAP	2966	**New Mexico**	Certified
Colorado	Certified	**New York ***	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida *	E871024	**Oregon (Primary AB) ***	**ORELAP 4034**
Georgia	947	**Pennsylvania ***	68-565
Guam	16-003r	**Puerto Rico**	Certified
Hawaii	Certified	**Rhode Island**	LAO00326
Idaho	Certified	**South Carolina**	87016
Illinois *	200033	**South Dakota**	Certified
Indiana	C-CA-01	**Tennessee**	TN02839
Kansas *	E-10268	**Texas ***	T104704230-15-9
Kentucky	90107	**Utah ***	CA000062016-10
Louisiana *	LA16003	**Vermont**	VT0114
Maine	CA0006	**Virginia ***	460260
Maryland	224	**Washington**	C838
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	Certified
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-S$^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

Acknowledgement of Samples Received

Addr: **Alpha Analytical Laboratories, Inc.**
208 Mason Street
Ukiah, CA 95482

Client ID: ALPHA-UKIAH
Folder #: 664409
Project: DRINKING
Sample Group: ORGANICS - EPA 500's

Attn: David S. Pingatore
Phone: 925 828 6226

Project Manager: Magnolia Busse
Phone: 916-605-3387
PO #: 17F0147

The following samples were received from you on **June 06, 2017** at **09:53**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
201706060510	LGRS-03: Rotary Shallow	06/01/2017 1415
	Variable ID: 17F0147-01	
	@525_FGL_SHORT	

Test Description

@525_FGL_SHORT -- Semivolatiles by GCMS

Reported: 06/21/2017

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0147

664409 W7

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Eurofins Eaton Analytical Inc.
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016
Phone :626-568-6463
Fax: 626-568-6324
Terms: Net 30

Analysis	Due	Expires	Comments
17F0147-01 LGRS-03: Rotary Shallow [Water] Sampled 06/01/17 14:15			
525.2 DDW SVOC Reg3	06/16/17 12:00	06/15/17 14:15	

Containers Supplied:

1L Amber-HCl (U) 1L Amber-HCl (V)

☐ *Report to State*

System Name:

Employed by:

User ID:

Sampler:

System Number:

+QC

	6-5-17	EEA	6/6/17 9:53
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Page 1 of 1

eurofins | Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number: 664409

SAMPLES REC'D DAY OF COLLECTION? ☐

SAMPLE TEMP RECEIVED:

IR Gun ID = 352-A (Observation= 4.8 °C) (Corr.Factor -0.2 °C) (Final = 4.6 °C)

CONDITION OF ICE: [✓ Frozen] Partially Frozen ____ Thawed ____ N/A ____

TYPE OF ICE: [✓ Real] Synthetic ____ No Ice ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: C ____ ON TRAC 2 DCS ____

Compliance Acceptance Criteria:

1) Chemistry: >0, ≤6°C, not frozen (NELAP) (If received after 24 hrs of sample collection)

2) Microbiology, Distribution: < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) Microbiology, Surface Water: < 10°C (If received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4) UCMR3 : (non-GLEC)

524.3: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

522: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

≤10°C if received within 48 hours of sample collection (not the same business day); ≤6°C if received after 48 hours of sample collection. Measure temperature for each method above.

5) LT2: Giardia /Cryptosporidium: <20 °C, not frozen (received after 8 hours of sample collection)

E. Coli: < 10°C, not frozen (If received after 2 hours of sample collection)

Giardia/Crypto: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

E.Coli: (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

6) Dioxin (1613 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (If received after 24 hrs of sample collection)

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:			Eurofins Eaton Analytical	6/6/14	9:53

Page ____ of ____

Laboratory Comments

Report: 664409
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

The Comments Report may be blank if there are no comments for this report.

Laboratory Hits

Report: 664409
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL

SUMMARY OF POSITIVE DATA ONLY

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
LGRS-03: Rotary Shallow (201706060510)						**Sampled on 06/01/2017 1415**			
	Variable ID: 17F0147-01								
		EPA 525.2 - Semivolatiles by GCMS							
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	100	%		1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Acenaphthene-d10	91	%		1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Chrysene-d12	106	%		1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Perylene-d12	70	%		1
06/13/17	06/15/17 17:20	1002467	1003398	(EPA 525.2)	Phenanthrene-d10	100	%		1

Semivolatiles by GCMS

Prep Batch: 1002467 Analytical Batch: 1003398 **Analysis Date: 06/15/2017**

201706060510 LGRS-03: Rotary Shallow Analyzed by: JWC

Laboratory QC

Report: 664409
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.

Semivolatiles by GCMS by EPA 525.2

Prep Batch: 1002467 Analytical Batch: 1003398 **Analysis Date: 06/15/2017**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			91.6	%	92	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			90.4	%	90	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			96.8	%	97	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			95.2	%	95	(70-130)		
MS_201706010849	1,3-Dimethyl-2-nitrobenzene (S)			94.0	%	94	(70-130)		
LCS1	Acenaphthene-d10 (I)			87.5	%	88	(50-150)		
LCS2	Acenaphthene-d10 (I)			97.0	%	97	(50-150)		
MBLK	Acenaphthene-d10 (I)			92.9	%	93	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			76.8	%	77	(50-150)		
MS_201706010849	Acenaphthene-d10 (I)			88.2	%	88	(50-150)		
LCS1	Benzo(a)pyrene		2	2.09	ug/L	104	(70-130)		
LCS2	Benzo(a)pyrene		2	1.95	ug/L	98	(70-130)	20	6.9
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0160	ug/L	80	(50-150)		
MS_201706010849	Benzo(a)pyrene	ND	2	1.94	ug/L	97	(70-130)		
LCS1	Chrysene-d12 (I)			86.4	%	86	(50-150)		
LCS2	Chrysene-d12 (I)			101	%	101	(50-150)		
MBLK	Chrysene-d12 (I)			94.7	%	95	(50-150)		
MRL_CHK	Chrysene-d12 (I)			76.9	%	77	(50-150)		
MS_201706010849	Chrysene-d12 (I)			95.2	%	95	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.38	ug/L	119	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.49	ug/L	125	(70-130)	20	4.5
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.317	ug/L	106	(50-150)		
MS_201706010849	Di-(2-Ethylhexyl)adipate	ND	2	2.38	ug/L	119	(70-130)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.16	ug/L	108	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.37	ug/L	119	(70-130)	20	9.3
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.614	ug/L	102	(50-150)		
MS_201706010849	Di(2-Ethylhexyl)phthalate	ND	2	2.22	ug/L	111	(70-130)		
LCS1	Perylene-d12 (S)			93.9	%	94	(70-130)		
LCS2	Perylene-d12 (S)			86.0	%	86	(70-130)		
MBLK	Perylene-d12 (S)			82.6	%	83	(70-130)		
MRL_CHK	Perylene-d12 (S)			88.6	%	89	(70-130)		
MS_201706010849	Perylene-d12 (S)			85.6	%	86	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Alpha Analytical Laboratories, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Phenanthrene-d10 (I)			92.3	%	92	(50-150)		
LCS2	Phenanthrene-d10 (I)			101	%	101	(50-150)		
MBLK	Phenanthrene-d10 (I)			103	%	103	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			78.7	%	79	(50-150)		
MS_201706010849	Phenanthrene-d10 (I)			94.9	%	95	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

June 21, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706727
Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
LGRS-03: Rotary Shallow	06/01/2017	06/06/2017	SP 1706727-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	06/08/2017:208506 All analysis quality controls are within established criteria
	06/07/2017:206693 All preparation quality controls are within established criteria
903.0	06/14/2017:208817 All analysis quality controls are within established criteria
	06/11/2017:206813 All preparation quality controls are within established criteria
905.0	06/11/2017:208752 All analysis quality controls are within established criteria
	06/08/2017:206809 All preparation quality controls are within established criteria
906.0	06/08/2017:208428 All analysis quality controls are within established criteria
	06/06/2017:206665 All preparation quality controls are within established criteria

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706727
Customer : 2-20626

Radio QC

Ra - 05	06/19/2017:209054 All analysis quality controls are within established criteria
	06/15/2017:206808 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**

Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-06-21

June 21, 2017

Lab ID : SP 1706727-001
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : June 1, 2017-14:15
Sampled By : Not Available
Received On : June 6, 2017-10:00
Matrix : Water

Description : LGRS-03: Rotary Shallow
Project : 17F0147

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.500 ± 0.709	0.951	pCi/L	15/5	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-14:40 2A1708506
Gross Beta	0.763 ± 0.669	0.857	pCi/L	50	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-14:40 2A1708506
Strontium 90	0.477 ± 0.370	0.491	pCi/L	8	905.0	06/08/17-18:20 2P1706809	905.0	06/11/17-17:00 2A1708752
Total Alpha Radium (226)	0.000 ± 0.123	0.363	pCi/L	3	903.0	06/11/17-16:30 2P1706813	903.0	06/14/17-15:30 2A1708817
Tritium	57.9 ± 272	434	pCi/L	20000	906.0	06/06/17-15:05 2P1706665	906.0	06/08/17-05:00 2A1708428
Ra 228	0.000 ± 0.231	0.200	pCi/L	2	Ra - 05	06/15/17-18:45 2P1706808	Ra - 05	06/19/17-19:40 2A1709054

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706727
Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	06/08/17:208506aat	CCV	cpm	8767	41.5 %	35-47	
			CCB	cpm		0.0800	0.21	
Beta	900.0	06/08/17:208506aat	CCV	cpm	8767	88.1 %	83-94	
			CCB	cpm		0.4600	0.51	
Gross Alpha	900.0	06/07/17:206693aat	Blank	pCi/L		1.00	3	
			LCS	pCi/L	108.2	91.5 %	75-125	
			BS	pCi/L	108.2	106 %	60-140	
			BSD	pCi/L	108.2	126 %	60-140	
			BSRPD	pCi/L	108.2	17.0%	≤30	
Gross Beta	900.0	06/07/17:206693aat	Blank	pCi/L		-0.54	4	
			LCS	pCi/L	73.11	105 %	93-144	
			BS	pCi/L	73.11	91.1 %	80-130	
			BSD	pCi/L	73.11	97.8 %	80-130	
			BSRPD	pCi/L	108.2	7.2%	≤30	
Alpha	903.0	06/14/17:208817rmm	CCV	cpm	8385	42.3 %	37-46	
			CCB	cpm		0.0600	0.16	
Total Alpha Radium (226)	903.0	06/11/17:206813emv	RgBlk	pCi/L		0.06	2	
			LCS	pCi/L	21.85	66.8 %	52-107	
			BS	pCi/L	21.85	63.4 %	43-111	
			BSD	pCi/L	21.85	56.1 %	43-111	
			BSRPD	pCi/L	21.85	12.3%	≤35.5	
Beta	905.0	06/11/17:208752rmm	CCV	cpm	8766	88.1 %	85-93	
			CCB	cpm		0.4600	0.51	
Total Strontium	905.0	06/08/17:206809emv	RgBlk	pCi/L		-0.002	2	
			LRS	pCi/L	36.69	78.5 %	53-133	
			BS	pCi/L	36.69	97.5 %	75-125	
			BSD	pCi/L	36.69	97.8 %	75-125	
			BSRPD	pCi/L	36.69	0.3%	≤20	
Tritium	906.0	06/06/17:206665elc	Blank	pCi/L		-7	<300	
			LCS	pCi/L	1678	108 %	75-125	
			BS	pCi/L	1678	96.9 %	75-125	
			BSD	pCi/L	1678	105 %	75-125	
			BSRPD	pCi/L	1678	7.6%	≤25	
	906.0	06/08/17:208428elc	CCV	pCi/L	28900	103 %	90-110	
			CCB	pCi/L		246	500	
Beta	Ra - 05	06/19/17:209054emv	CCV	cpm	8759	89.2 %	84-94	
			CCB	cpm		0.4000	0.48	
Ra 228	Ra - 05	06/15/17:206808emv	RgBlk	pCi/L		0.01	3	
			LRS	pCi/L	37.60	84.8 %	65-108	
			BS	pCi/L	37.60	104 %	75-125	
			BSD	pCi/L	37.60	102 %	75-125	
			BSRPD	pCi/L	37.60	1.4%	≤25	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.

Quality Control - Radio

Definition	
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35, Dublin CA 94568
925-828-6226 F) 925-828-6309

Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 17F0147 Pg 1 of 1

Report to	**Invoice to (if different)**	**Project Information**
Company: Todd Groundwater	**Contact:**	**Project ID:** SCVWD IPR JD Morgan Park
Attn: Amber J Ritchie, GIT	**Email address:**	**Project No:**
Address: 2490 Mariner Square Loop, Suite 215 Alameda CA 94501	**Address:**	**PO Number:** 37809
Phone/Fax: 510-747.6920 x103; 846.633.9712	**Phone/Fax:**	
Email Address: aritchie@toddgroundwater.com		

Field Sampler - Printed Name & Signature:

Signature below authorizes work under terms stated on reverse side.

TAT
Standard 10 days ●
RUSH:
5 days ○
48 hours ○
Other: ____days ○

Lab preapproval required

Temp upon Receipt °C
Ukiah temp: 3.2°
Dublin temp: 2.0°C
Elk Grove temp:

Sample Identification	**Sampling**		**Container**					**Preservative**					**Matrix**				**Analysis Request**										**Sample Notes or DDW Source Numbers:**
	Date	**Time**	40ml Vial	Poly	Glass	Sleeve	Other	HCl	HNO3	H2SO4	Other	None	Water	Soil	Other	Total Number of Containers per Sample ID	DU - General Physical 50ml	Inorganics / general Mineral / Perchlorte / U 200.8	Cr6 218.6 DW	524.2 DDW Volatiles	DDW 504.1 507 508 515.1 525.2 531.1 547 548 549	DU pull - Asbestos DW (sub TEM) 2L	Dioxin 2,3,7,8 TCDD (sub Ceres)	Gross Alpha & Beta (sub FGL)	Radium 226 & 228 (sub FGL)	Strontium 90 / Tritium (sub FGL)	j-flag MDL format	
LGRS-03: Rotary Shallow **Morgan Park 03**	6-1-17	1415											x			1	x										x	
													x			3		x										
													x			1			x									
													x			4				x								
													x			16					x							
													x			2						x						
													x			2							x					
													x			1								x				
													x			3									x			
													x			3										x		

Relinquished by	Received by	Date	Time
		6-1-17	1555
	RS	6/1/17	1815
RS		6-1-17	18:55
		6-1-17	21:50

DDW Write On EDT Transmission? ○ Yes ● No
State System Number: ____________
If "Y" please enter the Source Number(s) in the column above

CA Geotracker EDF Report? ○ Yes ○ No
Global ID:
Sampling Company Log Code:
EDF to (Email Address):

Travel and Site Time:	Mileage:	Misc. Supplies:

alpha
Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

12 July 2017

Todd Groundwater
Amber Ritchie
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: SCVWD IPR JD Morgan Park
Work Order: 17F0149

Enclosed are the results of analyses for samples received by the laboratory on 06/01/17 21:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For David S. Pingatore
Project Manager

Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LGRS-04: Rotary Medium	17F0149-01	Water	06/01/17 11:35	06/01/17 21:50

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda CA, 94501

Project Manager: Amber Ritchie
Project: SCVWD IPR JD Morgan Park
Project Number: [none]

Reported:
07/12/17 13:59

LGRS-04: Rotary Medium

17F0149-01(Water)

Metals (Drinking Water) by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**53**	0.20	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	EPA 200.7	
Iron	**25**	20	100	ug/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	EPA 200.7	J
Magnesium	**21**	0.030	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	EPA 200.7	
Mercury	ND	0.060	1.0	ug/L	1	AF73384	06/12/17 08:55	06/12/17 13:05	EPA 245.1	U
Potassium	**0.98**	0.040	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	EPA 200.7	J
Sodium	**18**	0.020	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	EPA 200.7	

Metals by EPA 200 Series Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, hexavalent	**0.70**	0.050	1.0	ug/L	1	AF73168	06/06/17 21:19	06/06/17 21:19	EPA 218.6	J

Metals by EPA Method 200.8 ICP/MS

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Aluminum	**22**	8.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Antimony	**0.087**	0.080	6.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Arsenic	ND	0.80	2.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Barium	**61**	0.20	100	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Beryllium	ND	0.080	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Cadmium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Chromium	**2.4**	0.32	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Copper	**0.40**	0.20	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Lead	ND	0.080	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Manganese	**2.7**	0.20	20	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Nickel	**1.5**	0.24	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Selenium	ND	0.80	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Silver	ND	0.20	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Thallium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U
Uranium	**0.27**	0.080	1.0	pCi/l	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	J
Zinc	ND	2.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:17	EPA 200.8	U

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-04: Rotary Medium

17F0149-01(Water)

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Aggressive Index	**11.66**		2.00	NU	1	AF73148	06/07/17 09:22	06/16/17 06:30	AWWA	
Bicarbonate	**190**	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	
Carbonate	ND	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	U
Color	**6.0**	3.0	5.0	CU	1	AF73079	06/01/17 20:10	06/01/17 20:10	SM2120B	
Hydroxide	ND	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	U
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L	1	AE74270	06/02/17 14:00	06/07/17 14:15	SM5540C	U
Odor	ND		1.0	T.O.N.	1	AF73079	06/01/17 20:10	06/01/17 20:10	EPA 140.1	U
Perchlorate	ND	0.90	4.0	ug/L	1	AF73107	06/05/17 09:05	06/05/17 13:53	EPA 314.0	U
pH	**7.35**	1.68	1.68	pH Units	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM4500-H+ B	T-14
Specific Conductance (EC)	**560**	1.0	20	umhos/cm	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM2510B	
Total Dissolved Solids	**330**	5.0	10	mg/L	1	AF73199	06/07/17 08:14	06/14/17 14:15	SM2540C	
Turbidity	**0.45**	0.050	0.10	NTU	1	AF73080	06/02/17 16:15	06/02/17 16:15	SM2130B	
Total Alkalinity as CaCO3	**160**	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	
Nitrate + Nitrite as N	**1.9**	0.0086	0.40	mg/L	1	AF73143	06/06/17 09:19	06/09/17 09:40	Calculation	
Hardness, Total	**218**	1	5	mg/L	1	AF73148	06/07/17 09:22	06/14/17 15:49	SM2340B	

Miscellaneous Physical/Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Cyanide (total)	ND	0.0020	0.10	mg/L	1	AF73140	06/06/17 12:37	06/06/17 12:37	10-204-00-1X	U

Anions by EPA Method 300.0

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**48**	1.0	5.0	mg/L	10	AF73063	06/02/17 20:55	06/02/17 20:55	EPA 300.0	
Fluoride	**0.11**	0.070	0.10	mg/L	1	AF73063	06/02/17 21:12	06/02/17 21:12	EPA 300.0	
Nitrate as N	**1.9**	0.040	0.40	mg/L	1	AF73063	06/02/17 21:12	06/02/17 21:12	EPA 300.0	
Nitrite as N	ND	0.050	0.40	mg/L	1	AF73063	06/02/17 21:12	06/02/17 21:12	EPA 300.0	U
Sulfate as SO4	**41**	2.0	5.0	mg/L	10	AF73063	06/02/17 20:55	06/02/17 20:55	EPA 300.0	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-04: Rotary Medium

17F0149-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by EPA Method 524.2										
Benzene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Carbon tetrachloride	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Chlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,1-Dichloroethane	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,2-Dichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,1-Dichloroethene	**4.5**	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,2-Dichloropropane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Ethylbenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Methylene chloride	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Styrene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Tetrachloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Toluene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
1,1,1-Trichloroethane	**3.9**	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Trichloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Trichlorofluoromethane	ND	0.50	5.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Trichlorotrifluoroethane	ND	0.40	10	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Vinyl chloride	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Xylenes (total)	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 17:13	EPA 524.2	U
Surrogate: Bromofluorobenzene			*106 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:13*	*EPA 524.2*	
Surrogate: Dibromofluoromethane			*92.3 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:13*	*EPA 524.2*	
Surrogate: Toluene-d8			*101 %*		*70-130*	*AF73226*	*06/06/17 15:00*	*06/07/17 17:13*	*EPA 524.2*	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-04: Rotary Medium

17F0149-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chlorinated Pesticides and PCBs by EPA Method 508										
Endrin	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Heptachlor	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Heptachlor epoxide	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Hexachlorobenzene	ND	0.010	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Methoxychlor	ND	0.020	10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1016	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1221	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1232	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1242	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1248	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1254	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
PCB-1260	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Total PCBs	ND	0.30	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Toxaphene	ND	0.40	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Chlordane (tech)	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:00	EPA 508	U
Surrogate: Dibutylchlorendate			*86.6 %*	*70-130*		*AF73122*	*06/05/17 11:57*	*06/10/17 04:00*	*EPA 508*	
Nitrogen- and Phosphorus- Pesticides by EPA Method 507										
Alachlor	ND	0.50	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:01	EPA 507	U
Atrazine	ND	0.30	0.50	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:01	EPA 507	U
Molinate	ND	0.20	2.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:01	EPA 507	U
Simazine	ND	0.30	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:01	EPA 507	U
Thiobencarb	ND	0.20	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:01	EPA 507	U
Surrogate: 1,3-Dimethyl-2-nitrobenzene			*100 %*	*70-130*		*AF73181*	*06/06/17 14:50*	*06/09/17 04:01*	*EPA 507*	

LGRS-04: Rotary Medium

17F0149-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organic Analytes by EPA Method 504.1										
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L	1	AF73284	06/12/17 07:00	06/13/17 00:38	EPA 504.1	U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L	1	AF73284	06/12/17 07:00	06/13/17 00:38	EPA 504.1	U
Chlorinated Acids by EPA Method 515.1										
Bentazon	ND	0.40	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
2,4-D	ND	0.80	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
Dalapon	ND	6.0	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
Dinoseb	ND	0.80	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
Pentachlorophenol	ND	0.20	0.20	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
Picloram	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 01:45	EPA 515.1	U
Surrogate: DCAA			*94.3 %*		*70-130*	*AF73233*	*06/08/17 07:00*	*06/15/17 01:45*	*EPA 515.1*	
Carbamates by EPA Method 531.1										
Carbofuran	ND	0.90	5.0	ug/L	1	AF73245	06/12/17 07:39	06/13/17 00:29	EPA 531.1	U
Oxamyl	ND	1.0	20	ug/L	1	AF73245	06/12/17 07:39	06/13/17 00:29	EPA 531.1	U
Endothall by EPA Method 548.1										
Endothall	ND	20	45	ug/L	1	AF73184	06/07/17 15:25	06/08/17 21:47	EPA 548.1	U
Glyphosate by EPA Method 547										
Glyphosate	ND	3.0	25	ug/L	1	AF73108	06/05/17 09:32	06/05/17 19:39	EPA 547	U
Diquat by EPA Method 549.2										
Diquat	ND	2.0	4.0	ug/L	1	AF73099	06/05/17 06:25	06/07/17 17:22	EPA 549.2	U

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Batch AF73148 - Metals Digest

Blank (AF73148-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	ND	0.20	1.0	mg/L							U
Iron	ND	20	100	ug/L							U
Magnesium	ND	0.030	1.0	mg/L							U
Potassium	ND	0.040	1.0	mg/L							U
Sodium	0.0725	0.020	1.0	mg/L							J

LCS (AF73148-BS1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	7.46	0.20	1.0	mg/L	8.00		93.3	85-115			
Iron	1880	20	100	ug/L	2000		94.2	85-115			
Magnesium	7.41	0.030	1.0	mg/L	8.00		92.6	85-115			
Potassium	7.35	0.040	1.0	mg/L	8.00		91.9	85-115			
Sodium	8.01	0.020	1.0	mg/L	8.00		100	85-115			

Duplicate (AF73148-DUP1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	81.2	0.20	1.0	mg/L		78.7			3.08	20	
Iron	40.8	20	100	ug/L		36.0			12.5	20	J
Magnesium	46.5	0.030	1.0	mg/L		45.7			1.80	20	
Potassium	1.70	0.040	1.0	mg/L		1.60			6.15	20	
Sodium	35.7	0.020	1.0	mg/L		34.6			3.27	20	

Matrix Spike (AF73148-MS1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	90.1	0.20	1.0	mg/L	8.00	78.7	142	70-130			QM-4X
Iron	1930	20	100	ug/L	2000	36.0	94.7	70-130			
Magnesium	53.7	0.030	1.0	mg/L	8.00	45.7	100	70-130			
Potassium	9.24	0.040	1.0	mg/L	8.00	1.60	95.4	70-130			
Sodium	43.2	0.020	1.0	mg/L	8.00	34.6	107	70-130			

Matrix Spike (AF73148-MS2) **Source: 17F0124-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	23.1	0.20	1.0	mg/L	8.00	14.9	103	70-130			
Iron	4750	20	100	ug/L	2000	2280	124	70-130			
Magnesium	16.9	0.030	1.0	mg/L	8.00	9.02	98.6	70-130			
Potassium	291	0.040	1.0	mg/L	8.00	281	120	70-130			
Sodium	50.2	0.020	1.0	mg/L	8.00	43.0	90.1	70-130			

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73148 - Metals Digest											
Matrix Spike Dup (AF73148-MSD1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Calcium	92.9	0.20	1.0	mg/L	8.00	78.7	177	70-130	3.05	20	QM-4X
Iron	1980	20	100	ug/L	2000	36.0	97.1	70-130	2.47	20	
Magnesium	54.1	0.030	1.0	mg/L	8.00	45.7	106	70-130	0.773	20	
Potassium	9.27	0.040	1.0	mg/L	8.00	1.60	95.8	70-130	0.318	20	
Sodium	44.6	0.020	1.0	mg/L	8.00	34.6	125	70-130	3.27	20	
Batch AF73384 - EPA 245.1 Hg Water											
Blank (AF73384-BLK1)					Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L							U
LCS (AF73384-BS1)					Prepared & Analyzed: 06/12/17						
Mercury	2.75	0.060	1.0	ug/L	2.50		110	85-115			
Duplicate (AF73384-DUP1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L		ND				20	U
Matrix Spike (AF73384-MS1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.65	0.060	1.0	ug/L	2.50	ND	106	70-130			
Matrix Spike Dup (AF73384-MSD1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.63	0.060	1.0	ug/L	2.50	ND	105	70-130	0.758	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73168 - General Preparation											
Blank (AF73168-BLK1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L							U
LCS (AF73168-BS1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.3	0.050	1.0	ug/L	10.0		103	90-110			
Duplicate (AF73168-DUP1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L		ND				20	U
Matrix Spike (AF73168-MS1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.86	0.050	1.0	ug/L	10.0	ND	98.6	90-110			
Matrix Spike (AF73168-MS2)		**Source: 17F0151-01**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.9	0.050	1.0	ug/L	10.0	0.990	98.6	90-110			
Matrix Spike Dup (AF73168-MSD1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.94	0.050	1.0	ug/L	10.0	ND	99.4	90-110	0.778	20	

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Blank (AF73110-BLK1) Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	ND	2.0	50	ug/L							U
Antimony	0.0429	0.020	6.0	ug/L							J
Arsenic	0.302	0.20	2.0	ug/L							J
Barium	ND	0.050	100	ug/L							U
Beryllium	ND	0.020	1.0	ug/L							U
Cadmium	ND	0.050	1.0	ug/L							U
Chromium	0.147	0.080	10	ug/L							J
Copper	ND	0.050	50	ug/L							U
Lead	ND	0.020	5.0	ug/L							U
Manganese	ND	0.050	20	ug/L							U
Nickel	ND	0.060	10	ug/L							U
Selenium	ND	0.20	5.0	ug/L							U
Silver	ND	0.050	10	ug/L							U
Thallium	ND	0.050	1.0	ug/L							U
Uranium	ND	0.020	1.0	pCi/l							U
Zinc	ND	0.50	50	ug/L							U

LCS (AF73110-BS1) Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	556	2.0	50	ug/L	520		107	85-115			
Antimony	21.0	0.020	6.0	ug/L	20.0		105	85-115			
Arsenic	21.1	0.20	2.0	ug/L	20.0		105	85-115			
Barium	20.7	0.050	100	ug/L	20.0		103	85-115			J
Beryllium	22.6	0.020	1.0	ug/L	20.0		113	85-115			
Cadmium	20.3	0.050	1.0	ug/L	20.0		101	85-115			
Chromium	20.5	0.080	10	ug/L	20.0		102	85-115			
Copper	20.1	0.050	50	ug/L	20.0		101	85-115			J
Lead	21.2	0.020	5.0	ug/L	20.0		106	85-115			
Manganese	20.9	0.050	20	ug/L	20.0		104	85-115			
Nickel	19.9	0.060	10	ug/L	20.0		99.4	85-115			
Selenium	20.7	0.20	5.0	ug/L	20.0		104	85-115			
Silver	20.3	0.050	10	ug/L	20.0		102	85-115			
Thallium	21.2	0.050	1.0	ug/L	20.0		106	85-115			
Uranium	14.0	0.020	1.0	pCi/l	13.4		105	85-115			
Zinc	102	0.50	50	ug/L	100		102	85-115			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Duplicate (AF73110-DUP1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	77.5	8.0	50	ug/L		81.1			4.43	20	
Antimony	7.89	0.080	6.0	ug/L		7.99			1.20	20	
Arsenic	1.30	0.80	2.0	ug/L		1.55			17.4	20	J
Barium	25.3	0.20	100	ug/L		26.1			3.34	20	J
Beryllium	ND	0.080	1.0	ug/L		ND				20	U
Cadmium	ND	0.20	1.0	ug/L		ND				20	U
Chromium	1.29	0.32	10	ug/L		1.42			10.1	20	J
Copper	70.3	0.20	50	ug/L		73.4			4.41	20	
Lead	0.525	0.080	5.0	ug/L		0.520			0.956	20	J
Manganese	23.9	0.20	20	ug/L		24.9			3.86	20	
Nickel	1.99	0.24	10	ug/L		2.08			4.71	20	J
Selenium	ND	0.80	5.0	ug/L		ND				20	U
Silver	ND	0.20	10	ug/L		ND				20	U
Thallium	ND	0.20	1.0	ug/L		ND				20	U
Uranium	ND	0.080	1.0	pCi/l		ND				20	U
Zinc	76.9	2.0	50	ug/L		79.2			2.91	20	

Matrix Spike (AF73110-MS1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	600	8.0	50	ug/L	520	81.1	99.8	70-130			
Antimony	28.1	0.080	6.0	ug/L	20.0	7.99	101	70-130			
Arsenic	21.8	0.80	2.0	ug/L	20.0	1.55	101	70-130			
Barium	44.2	0.20	100	ug/L	20.0	26.1	90.4	70-130			J
Beryllium	21.1	0.080	1.0	ug/L	20.0	ND	106	70-130			
Cadmium	19.2	0.20	1.0	ug/L	20.0	ND	96.0	70-130			
Chromium	21.4	0.32	10	ug/L	20.0	1.42	99.8	70-130			
Copper	88.6	0.20	50	ug/L	20.0	73.4	76.0	70-130			
Lead	20.4	0.080	5.0	ug/L	20.0	0.520	99.2	70-130			
Manganese	43.8	0.20	20	ug/L	20.0	24.9	94.7	70-130			
Nickel	22.6	0.24	10	ug/L	20.0	2.08	102	70-130			
Selenium	23.9	0.80	5.0	ug/L	20.0	ND	119	70-130			
Silver	19.4	0.20	10	ug/L	20.0	ND	97.2	70-130			
Thallium	19.9	0.20	1.0	ug/L	20.0	ND	99.4	70-130			
Uranium	14.0	0.080	1.0	pCi/l	13.4	ND	104	70-130			
Zinc	172	2.0	50	ug/L	100	79.2	92.5	70-130			

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Matrix Spike (AF73110-MS2) **Source: 17E2649-01** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	554	2.0	50	ug/L	520	109	85.6	70-130			
Antimony	21.0	0.020	6.0	ug/L	20.0	0.490	103	70-130			
Arsenic	20.3	0.20	2.0	ug/L	20.0	0.391	99.7	70-130			
Barium	72.3	0.050	100	ug/L	20.0	53.0	96.3	70-130			J
Beryllium	19.2	0.020	1.0	ug/L	20.0	ND	95.9	70-130			
Cadmium	18.9	0.050	1.0	ug/L	20.0	ND	94.5	70-130			
Chromium	18.9	0.080	10	ug/L	20.0	2.18	83.6	70-130			
Copper	682	0.050	50	ug/L	20.0	648	171	70-130			QM-4X
Lead	707	0.020	5.0	ug/L	20.0	666	209	70-130			QM-4X
Manganese	20.9	0.050	20	ug/L	20.0	2.06	94.1	70-130			
Nickel	23.9	0.060	10	ug/L	20.0	5.82	90.5	70-130			
Selenium	19.1	0.20	5.0	ug/L	20.0	0.227	94.4	70-130			
Silver	18.4	0.050	10	ug/L	20.0	0.135	91.2	70-130			
Thallium	17.8	0.050	1.0	ug/L	20.0	ND	89.2	70-130			
Uranium	12.9	0.020	1.0	pCi/l	13.4	0.106	95.5	70-130			
Zinc	216	0.50	50	ug/L	100	123	93.1	70-130			

Matrix Spike Dup (AF73110-MSD1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	599	8.0	50	ug/L	520	81.1	99.6	70-130	0.129	20	
Antimony	28.4	0.080	6.0	ug/L	20.0	7.99	102	70-130	1.10	20	
Arsenic	21.7	0.80	2.0	ug/L	20.0	1.55	101	70-130	0.641	20	
Barium	45.0	0.20	100	ug/L	20.0	26.1	94.5	70-130	1.86	20	J
Beryllium	21.0	0.080	1.0	ug/L	20.0	ND	105	70-130	0.699	20	
Cadmium	20.1	0.20	1.0	ug/L	20.0	ND	101	70-130	4.74	20	
Chromium	22.4	0.32	10	ug/L	20.0	1.42	105	70-130	4.62	20	
Copper	90.6	0.20	50	ug/L	20.0	73.4	86.0	70-130	2.22	20	
Lead	20.3	0.080	5.0	ug/L	20.0	0.520	98.8	70-130	0.364	20	
Manganese	44.7	0.20	20	ug/L	20.0	24.9	99.0	70-130	1.97	20	
Nickel	22.9	0.24	10	ug/L	20.0	2.08	104	70-130	1.44	20	
Selenium	23.7	0.80	5.0	ug/L	20.0	ND	118	70-130	0.684	20	
Silver	19.5	0.20	10	ug/L	20.0	ND	97.7	70-130	0.565	20	
Thallium	19.7	0.20	1.0	ug/L	20.0	ND	98.6	70-130	0.894	20	
Uranium	13.9	0.080	1.0	pCi/l	13.4	ND	104	70-130	0.520	20	
Zinc	176	2.0	50	ug/L	100	79.2	96.8	70-130	2.52	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AE74242 - General Preparation											
Duplicate (AE74242-DUP1)		**Source: 17E2539-01**			Prepared & Analyzed: 06/06/17						
Bicarbonate	19.5	1.0	5.0	mg/L		19.5			0.00	20	
Carbonate	ND	1.0	5.0	mg/L		ND				20	U
Hydroxide	ND	1.0	5.0	mg/L		ND				5	U
Total Alkalinity as CaCO3	16.0	1.0	5.0	mg/L		16.0			0.00	20	
Batch AE74270 - General Preparation											
Blank (AE74270-BLK1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L							U
LCS (AE74270-BS1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.181	0.030	0.050	mg/L	0.200		90.5	80-120			
LCS Dup (AE74270-BSD1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.185	0.030	0.050	mg/L	0.200		92.6	80-120	2.22	20	
Duplicate (AE74270-DUP1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L		ND				20	U
Matrix Spike (AE74270-MS1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.169	0.030	0.050	mg/L	0.200	ND	84.4	80-120			
Matrix Spike Dup (AE74270-MSD1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.173	0.030	0.050	mg/L	0.200	ND	86.5	80-120	2.38	20	
Batch AF73080 - General Prep (DU)											
Duplicate (AF73080-DUP1)		**Source: 17F0174-01**			Prepared & Analyzed: 06/02/17						
Turbidity	0.100	0.050	0.10	NTU		0.0900			10.5	15	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73107 - General Preparation											
Blank (AF73107-BLK1)					Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L							U
LCS (AF73107-BS1)					Prepared & Analyzed: 06/05/17						
Perchlorate	24.6	0.90	4.0	ug/L	25.0		98.4	85-115			
Duplicate (AF73107-DUP1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L		ND				15	U
Matrix Spike (AF73107-MS1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.1	0.90	4.0	ug/L	25.0	ND	100	70-130			
Matrix Spike Dup (AF73107-MSD1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.0	0.90	4.0	ug/L	25.0	ND	99.9	70-130	0.304	15	
Batch AF73128 - General Preparation											
Duplicate (AF73128-DUP1)		**Source: 17F0185-01**			Prepared & Analyzed: 06/02/17						
Specific Conductance (EC)	1550	1.0	20	umhos/cm		1550			0.00	5	
pH	7.06	1.68	1.68	pH Units		7.05			0.142	20	T-14
Batch AF73148 - Metals Digest											
Blank (AF73148-BLK1)					Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	ND	1	5	mg/L							U
Duplicate (AF73148-DUP1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	394	1	5	mg/L		385			2.45	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73199 - General Preparation											
Blank (AF73199-BLK1)					Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	ND	5.0	10	mg/L							U
Duplicate (AF73199-DUP1)		**Source: 17E2652-01**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	277	5.0	10	mg/L		255			8.27	15	
Duplicate (AF73199-DUP2)		**Source: 17F0169-04**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	348	5.0	10	mg/L		357			2.65	15	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73140 - General Preparation											
Blank (AF73140-BLK1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L							U
LCS (AF73140-BS1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.208	0.0020	0.10	mg/L	0.200		104	85-115			
Duplicate (AF73140-DUP1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L		ND				25	U
Matrix Spike (AF73140-MS1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.223	0.0020	0.10	mg/L	0.200	ND	111	85-115			
Matrix Spike (AF73140-MS2)		**Source: 17F0343-01**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.205	0.0020	0.10	mg/L	0.200	0.0210	92.2	85-115			
Matrix Spike Dup (AF73140-MSD1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.220	0.0020	0.10	mg/L	0.200	ND	110	85-115	1.19	25	

Anions by EPA Method 300.0 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73063 - General Preparation											
Blank (AF73063-BLK1)					Prepared & Analyzed: 06/02/17						
Fluoride	ND	0.070	0.10	mg/L							U
Sulfate as SO4	ND	0.20	0.50	mg/L							U
Chloride	ND	0.10	0.50	mg/L							U
Nitrite as N	ND	0.050	0.40	mg/L							U
Nitrate as N	ND	0.040	0.40	mg/L							U
LCS (AF73063-BS1)					Prepared & Analyzed: 06/02/17						
Sulfate as SO4	22.1	0.20	0.50	mg/L	22.2		99.3	90-110			
Nitrite as N	5.46	0.050	0.40	mg/L	5.56		98.2	90-110			
Chloride	11.0	0.10	0.50	mg/L	11.1		99.4	90-110			
Nitrate as N	5.62	0.040	0.40	mg/L	5.56		101	90-110			
Fluoride	5.69	0.070	0.10	mg/L	5.56		102	90-110			
Duplicate (AF73063-DUP1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Sulfate as SO4	ND	0.20	0.50	mg/L		ND				20	U
Chloride	2.23	0.10	0.50	mg/L		2.27			1.51	20	
Nitrate as N	0.113	0.040	0.40	mg/L		0.114			1.39	20	J
Nitrite as N	ND	0.050	0.40	mg/L		ND				20	U
Fluoride	ND	0.070	0.10	mg/L		ND				20	U
Matrix Spike (AF73063-MS1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Nitrite as N	5.05	0.050	0.40	mg/L	5.56	ND	90.9	80-120			
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.5	80-120			
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	105	80-120			
Fluoride	5.65	0.070	0.10	mg/L	5.56	ND	102	80-120			
Nitrate as N	6.21	0.040	0.40	mg/L	5.56	0.114	110	80-120			
Matrix Spike (AF73063-MS2)		**Source: 17F0125-01**			Prepared & Analyzed: 06/02/17						
Nitrite as N	5.18	0.25	2.0	mg/L	5.56	ND	93.3	80-120			
Chloride	54.2	0.50	2.5	mg/L	11.1	43.0	101	80-120			
Sulfate as SO4	30.0	1.0	2.5	mg/L	22.2	10.2	89.2	80-120			
Nitrate as N	5.76	0.20	2.0	mg/L	5.56	ND	104	80-120			
Fluoride	5.33	0.35	0.50	mg/L	5.56	ND	96.0	80-120			

Anions by EPA Method 300.0 - Quality Control

Batch AF73063 - General Preparation

Matrix Spike Dup (AF73063-MSD1) **Source: 17F0130-01** Prepared & Analyzed: 06/02/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fluoride	5.64	0.070	0.10	mg/L	5.56	ND	101	80-120	0.158	20	
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.4	80-120	0.0711	20	
Nitrite as N	5.04	0.050	0.40	mg/L	5.56	ND	90.8	80-120	0.0881	20	
Nitrate as N	6.20	0.040	0.40	mg/L	5.56	0.114	110	80-120	0.121	20	
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	104	80-120	0.0561	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Blank (AF73226-BLK1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	ND	0.30	0.50	ug/L							U
Carbon tetrachloride	ND	0.30	0.50	ug/L							U
Chlorobenzene	ND	0.50	0.50	ug/L							U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,1-Dichloroethane	ND	0.40	0.50	ug/L							U
1,2-Dichloroethane	ND	0.50	0.50	ug/L							U
1,1-Dichloroethene	ND	0.30	0.50	ug/L							U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
1,2-Dichloropropane	ND	0.50	0.50	ug/L							U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L							U
Ethylbenzene	ND	0.50	0.50	ug/L							U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L							U
Methylene chloride	ND	0.40	0.50	ug/L							U
Styrene	ND	0.50	0.50	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L							U
Tetrachloroethene	ND	0.50	0.50	ug/L							U
Toluene	ND	0.30	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L							U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L							U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L							U
Trichloroethene	ND	0.50	0.50	ug/L							U
Trichlorofluoromethane	ND	0.50	5.0	ug/L							U
Trichlorotrifluoroethane	ND	0.40	10	ug/L							U
Vinyl chloride	ND	0.50	0.50	ug/L							U
Xylenes (total)	ND	0.50	0.50	ug/L							U
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*21.6*			*ug/L*	*25.0*		*86.4*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.6*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda CA, 94501

Project Manager: Amber Ritchie
Project: SCVWD IPR JD Morgan Park
Project Number: [none]

Reported:
07/12/17 13:59

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS (AF73226-BS1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.29	0.30	0.50	ug/L	5.00		85.8	70-130			
Carbon tetrachloride	3.71	0.30	0.50	ug/L	5.00		74.2	70-130			
Chlorobenzene	4.66	0.50	0.50	ug/L	5.00		93.2	70-130			
1,2-Dichlorobenzene	4.67	0.50	0.50	ug/L	5.00		93.4	70-130			
1,4-Dichlorobenzene	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethane	4.16	0.40	0.50	ug/L	5.00		83.2	70-130			
1,2-Dichloroethane	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethene	3.62	0.30	0.50	ug/L	5.00		72.4	70-130			
cis-1,2-Dichloroethene	4.27	0.40	0.50	ug/L	5.00		85.4	70-130			
trans-1,2-Dichloroethene	3.93	0.40	0.50	ug/L	5.00		78.6	70-130			
1,2-Dichloropropane	4.56	0.50	0.50	ug/L	5.00		91.2	70-130			
Ethylbenzene	4.49	0.50	0.50	ug/L	5.00		89.8	70-130			
Methyl tert-butyl ether	3.93	0.50	3.0	ug/L	5.00		78.6	70-130			
Methylene chloride	3.97	0.40	0.50	ug/L	5.00		79.4	70-130			
Styrene	4.62	0.50	0.50	ug/L	5.00		92.4	70-130			
1,1,2,2-Tetrachloroethane	4.74	0.50	0.50	ug/L	5.00		94.8	70-130			
Tetrachloroethene	4.57	0.50	0.50	ug/L	5.00		91.4	70-130			
Toluene	4.48	0.30	0.50	ug/L	5.00		89.6	70-130			
1,2,4-Trichlorobenzene	4.77	0.40	0.50	ug/L	5.00		95.4	70-130			
1,1,1-Trichloroethane	4.01	0.40	0.50	ug/L	5.00		80.2	70-130			
1,1,2-Trichloroethane	4.70	0.50	0.50	ug/L	5.00		94.0	70-130			
Trichloroethene	4.36	0.50	0.50	ug/L	5.00		87.2	70-130			
Trichlorofluoromethane	4.24	0.50	5.0	ug/L	5.00		84.8	70-130			J
Trichlorotrifluoroethane	4.18	0.40	10	ug/L	5.00		83.6	70-130			J
Vinyl chloride	4.06	0.50	0.50	ug/L	5.00		81.2	70-130			
Xylenes (total)	13.6	0.50	0.50	ug/L	15.0		90.5	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*105*	*70-130*			
Surrogate: Dibromofluoromethane	*22.2*			*ug/L*	*25.0*		*88.9*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.4*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS Dup (AF73226-BSD1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.55	0.30	0.50	ug/L	5.00		91.0	70-130	5.88	30	
Carbon tetrachloride	4.16	0.30	0.50	ug/L	5.00		83.2	70-130	11.4	30	
Chlorobenzene	4.82	0.50	0.50	ug/L	5.00		96.4	70-130	3.38	30	
1,2-Dichlorobenzene	4.85	0.50	0.50	ug/L	5.00		97.0	70-130	3.78	30	
1,4-Dichlorobenzene	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	3.51	30	
1,1-Dichloroethane	4.57	0.40	0.50	ug/L	5.00		91.4	70-130	9.39	30	
1,2-Dichloroethane	4.52	0.50	0.50	ug/L	5.00		90.4	70-130	0.889	30	
1,1-Dichloroethene	4.04	0.30	0.50	ug/L	5.00		80.8	70-130	11.0	30	
cis-1,2-Dichloroethene	4.66	0.40	0.50	ug/L	5.00		93.2	70-130	8.73	30	
trans-1,2-Dichloroethene	4.35	0.40	0.50	ug/L	5.00		87.0	70-130	10.1	30	
1,2-Dichloropropane	4.57	0.50	0.50	ug/L	5.00		91.4	70-130	0.219	30	
Ethylbenzene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	5.21	30	
Methyl tert-butyl ether	4.04	0.50	3.0	ug/L	5.00		80.8	70-130	2.76	30	
Methylene chloride	4.28	0.40	0.50	ug/L	5.00		85.6	70-130	7.52	30	
Styrene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	2.35	30	
1,1,2,2-Tetrachloroethane	4.86	0.50	0.50	ug/L	5.00		97.2	70-130	2.50	30	
Tetrachloroethene	4.70	0.50	0.50	ug/L	5.00		94.0	70-130	2.80	30	
Toluene	4.67	0.30	0.50	ug/L	5.00		93.4	70-130	4.15	30	
1,2,4-Trichlorobenzene	4.92	0.40	0.50	ug/L	5.00		98.4	70-130	3.10	30	
1,1,1-Trichloroethane	4.44	0.40	0.50	ug/L	5.00		88.8	70-130	10.2	30	
1,1,2-Trichloroethane	4.67	0.50	0.50	ug/L	5.00		93.4	70-130	0.640	30	
Trichloroethene	4.61	0.50	0.50	ug/L	5.00		92.2	70-130	5.57	30	
Trichlorofluoromethane	4.66	0.50	5.0	ug/L	5.00		93.2	70-130	9.44	30	J
Trichlorotrifluoroethane	4.68	0.40	10	ug/L	5.00		93.6	70-130	11.3	30	J
Vinyl chloride	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	13.3	30	
Xylenes (total)	14.2	0.50	0.50	ug/L	15.0		94.7	70-130	4.53	30	
Surrogate: Bromofluorobenzene	*26.1*			*ug/L*	*25.0*		*104*	*70-130*			
Surrogate: Dibromofluoromethane	*22.7*			*ug/L*	*25.0*		*90.8*	*70-130*			
Surrogate: Toluene-d8	*24.0*			*ug/L*	*25.0*		*96.0*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS1) **Source: 17F0147-01** Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	5.00	0.30	0.50	ug/L	5.00	ND	100	70-130			
Carbon tetrachloride	4.56	0.30	0.50	ug/L	5.00	ND	91.2	70-130			
Chlorobenzene	5.09	0.50	0.50	ug/L	5.00	ND	102	70-130			
1,2-Dichlorobenzene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
1,4-Dichlorobenzene	4.72	0.50	0.50	ug/L	5.00	ND	94.4	70-130			
1,1-Dichloroethane	5.31	0.40	0.50	ug/L	5.00	ND	106	70-130			
1,2-Dichloroethane	4.76	0.50	0.50	ug/L	5.00	ND	95.2	70-130			
1,1-Dichloroethene	5.66	0.30	0.50	ug/L	5.00	0.390	105	70-130			
cis-1,2-Dichloroethene	5.36	0.40	0.50	ug/L	5.00	ND	107	70-130			
trans-1,2-Dichloroethene	5.21	0.40	0.50	ug/L	5.00	ND	104	70-130			
1,2-Dichloropropane	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
Ethylbenzene	5.05	0.50	0.50	ug/L	5.00	ND	101	70-130			
Methyl tert-butyl ether	4.14	0.50	3.0	ug/L	5.00	ND	82.8	70-130			
Methylene chloride	4.61	0.40	0.50	ug/L	5.00	ND	92.2	70-130			
Styrene	4.83	0.50	0.50	ug/L	5.00	ND	96.6	70-130			
1,1,2,2-Tetrachloroethane	4.85	0.50	0.50	ug/L	5.00	ND	97.0	70-130			
Tetrachloroethene	5.24	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	5.21	0.30	0.50	ug/L	5.00	ND	104	70-130			
1,2,4-Trichlorobenzene	4.65	0.40	0.50	ug/L	5.00	ND	93.0	70-130			
1,1,1-Trichloroethane	6.12	0.40	0.50	ug/L	5.00	0.940	104	70-130			
1,1,2-Trichloroethane	4.93	0.50	0.50	ug/L	5.00	ND	98.6	70-130			
Trichloroethene	5.11	0.50	0.50	ug/L	5.00	ND	102	70-130			
Trichlorofluoromethane	5.95	0.50	5.0	ug/L	5.00	ND	119	70-130			
Trichlorotrifluoroethane	6.07	0.40	10	ug/L	5.00	ND	121	70-130			J
Vinyl chloride	5.70	0.50	0.50	ug/L	5.00	ND	114	70-130			
Xylenes (total)	15.2	0.50	0.50	ug/L	15.0	ND	101	70-130			
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*23.1*			*ug/L*	*25.0*		*92.5*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.7*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS2) **Source: 17F0149-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.86	0.30	0.50	ug/L	5.00	ND	97.2	70-130			
Carbon tetrachloride	4.36	0.30	0.50	ug/L	5.00	ND	87.2	70-130			
Chlorobenzene	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
1,2-Dichlorobenzene	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
1,4-Dichlorobenzene	4.60	0.50	0.50	ug/L	5.00	ND	92.0	70-130			
1,1-Dichloroethane	5.26	0.40	0.50	ug/L	5.00	ND	105	70-130			
1,2-Dichloroethane	4.70	0.50	0.50	ug/L	5.00	ND	94.0	70-130			
1,1-Dichloroethene	9.60	0.30	0.50	ug/L	5.00	4.50	102	70-130			
cis-1,2-Dichloroethene	5.47	0.40	0.50	ug/L	5.00	ND	109	70-130			
trans-1,2-Dichloroethene	4.98	0.40	0.50	ug/L	5.00	ND	99.6	70-130			
1,2-Dichloropropane	4.77	0.50	0.50	ug/L	5.00	ND	95.4	70-130			
Ethylbenzene	4.94	0.50	0.50	ug/L	5.00	ND	98.8	70-130			
Methyl tert-butyl ether	3.99	0.50	3.0	ug/L	5.00	ND	79.8	70-130			
Methylene chloride	4.34	0.40	0.50	ug/L	5.00	ND	86.8	70-130			
Styrene	4.69	0.50	0.50	ug/L	5.00	ND	93.8	70-130			
1,1,2,2-Tetrachloroethane	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
Tetrachloroethene	5.26	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	4.99	0.30	0.50	ug/L	5.00	ND	99.8	70-130			
1,2,4-Trichlorobenzene	4.67	0.40	0.50	ug/L	5.00	ND	93.4	70-130			
1,1,1-Trichloroethane	9.00	0.40	0.50	ug/L	5.00	3.91	102	70-130			
1,1,2-Trichloroethane	4.79	0.50	0.50	ug/L	5.00	ND	95.8	70-130			
Trichloroethene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
Trichlorofluoromethane	5.70	0.50	5.0	ug/L	5.00	ND	114	70-130			
Trichlorotrifluoroethane	6.01	0.40	10	ug/L	5.00	ND	120	70-130			J
Vinyl chloride	5.75	0.50	0.50	ug/L	5.00	ND	115	70-130			
Xylenes (total)	15.0	0.50	0.50	ug/L	15.0	ND	99.7	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*106*	*70-130*			
Surrogate: Dibromofluoromethane	*24.0*			*ug/L*	*25.0*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*25.4*			*ug/L*	*25.0*		*102*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73122 - SVOAs in Water GC

Blank (AF73122-BLK1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	ND	0.030	0.10	ug/L							U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L							U
Heptachlor	ND	0.010	0.010	ug/L							U
Heptachlor epoxide	ND	0.010	0.010	ug/L							U
Hexachlorobenzene	ND	0.010	0.50	ug/L							U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L							U
Methoxychlor	ND	0.020	10	ug/L							U
PCB-1016	ND	0.030	0.50	ug/L							U
PCB-1221	ND	0.030	0.50	ug/L							U
PCB-1232	ND	0.030	0.50	ug/L							U
PCB-1242	ND	0.030	0.50	ug/L							U
PCB-1248	ND	0.030	0.50	ug/L							U
PCB-1254	ND	0.030	0.50	ug/L							U
PCB-1260	ND	0.030	0.50	ug/L							U
Total PCBs	ND	0.30	0.50	ug/L							U
Toxaphene	ND	0.40	1.0	ug/L							U
Chlordane (tech)	ND	0.030	0.10	ug/L							U
Surrogate: Dibutylchlorendate	*0.704*			*ug/L*	*0.978*		*72.0*	*70-130*			

LCS (AF73122-BS1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.250	0.030	0.10	ug/L	0.280		89.4	70-130			
HCH-gamma (Lindane)	0.221	0.010	0.20	ug/L	0.280		78.8	70-130			
Heptachlor	0.217	0.010	0.010	ug/L	0.280		77.5	70-130			
Heptachlor epoxide	0.231	0.010	0.010	ug/L	0.280		82.5	70-130			
Hexachlorobenzene	0.222	0.010	0.50	ug/L	0.280		79.3	70-130			J
Hexachlorocyclopentadiene	0.269	0.040	1.0	ug/L	0.560		48.1	15-90			J
Methoxychlor	0.239	0.020	10	ug/L	0.280		85.5	70-130			J
Surrogate: Dibutylchlorendate	*0.828*			*ug/L*	*0.978*		*84.6*	*70-130*			

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73122 - SVOAs in Water GC

LCS Dup (AF73122-BSD1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.269	0.030	0.10	ug/L	0.280		96.1	70-130	7.24	25	
HCH-gamma (Lindane)	0.242	0.010	0.20	ug/L	0.280		86.5	70-130	9.25	25	
Heptachlor	0.234	0.010	0.010	ug/L	0.280		83.5	70-130	7.49	25	
Heptachlor epoxide	0.249	0.010	0.010	ug/L	0.280		89.0	70-130	7.65	25	
Hexachlorobenzene	0.207	0.010	0.50	ug/L	0.280		74.1	70-130	6.86	25	J
Hexachlorocyclopentadiene	0.305	0.040	1.0	ug/L	0.560		54.4	15-90	12.4	50	J
Methoxychlor	0.258	0.020	10	ug/L	0.280		92.2	70-130	7.61	25	J
Surrogate: Dibutylchlorendate	*0.866*			*ug/L*	*0.978*		*88.6*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73181 - SVOAs in Water GC

Blank (AF73181-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	ND	0.50	1.0	ug/L							U
Atrazine	ND	0.30	0.50	ug/L							U
Molinate	ND	0.20	2.0	ug/L							U
Simazine	ND	0.30	1.0	ug/L							U
Thiobencarb	ND	0.20	1.0	ug/L							U
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.61*			*ug/L*	*2.00*		*80.5*	*70-130*			

LCS (AF73181-BS1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.67	0.50	1.0	ug/L	2.80		95.3	70-130			
Atrazine	2.22	0.30	0.50	ug/L	2.80		79.4	70-130			
Molinate	2.02	0.20	2.0	ug/L	2.80		72.2	70-130			
Simazine	2.22	0.30	1.0	ug/L	2.80		79.4	70-130			
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.63*			*ug/L*	*2.00*		*81.4*	*70-130*			

LCS Dup (AF73181-BSD1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.16	0.50	1.0	ug/L	2.80		77.0	70-130	21.3	30	
Atrazine	2.15	0.30	0.50	ug/L	2.80		76.8	70-130	3.30	30	
Molinate	2.09	0.20	2.0	ug/L	2.80		74.8	70-130	3.42	30	
Simazine	2.23	0.30	1.0	ug/L	2.80		79.5	70-130	0.126	30	
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130	0.00691	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.58*			*ug/L*	*2.00*		*79.2*	*70-130*			

Matrix Spike (AF73181-MS1) **Source: 17F0087-01** Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.34	0.50	1.0	ug/L	2.80	ND	83.6	65-135			
Atrazine	2.42	0.30	0.50	ug/L	2.80	ND	86.3	65-135			
Molinate	2.15	0.20	2.0	ug/L	2.80	ND	77.0	65-135			
Simazine	2.48	0.30	1.0	ug/L	2.80	ND	88.5	65-135			
Thiobencarb	2.26	0.20	1.0	ug/L	2.80	ND	80.7	65-135			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.77*			*ug/L*	*2.00*		*88.6*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73181 - SVOAs in Water GC

Matrix Spike Dup (AF73181-MSD1) **Source: 17F0087-01** Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.09	0.50	1.0	ug/L	2.80	ND	74.5	65-135	11.5	30	
Atrazine	2.17	0.30	0.50	ug/L	2.80	ND	77.6	65-135	10.7	30	
Molinate	2.00	0.20	2.0	ug/L	2.80	ND	71.3	65-135	7.69	30	
Simazine	2.19	0.30	1.0	ug/L	2.80	ND	78.4	65-135	12.1	30	
Thiobencarb	2.15	0.20	1.0	ug/L	2.80	ND	76.7	65-135	5.19	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.48*			*ug/L*	*2.00*		*74.0*	*70-130*			

Organic Analytes by EPA Method 504.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73284 - EPA 504.1											
Blank (AF73284-BLK1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L							U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L							U
LCS (AF73284-BS1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.321	0.0040	0.010	ug/L	0.250		129	70-130			
1,2-Dibromoethane (EDB)	0.280	0.0050	0.020	ug/L	0.250		112	70-130			
LCS Dup (AF73284-BSD1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.213	0.0040	0.010	ug/L	0.250		85.3	70-130	40.4	25	QL-04
1,2-Dibromoethane (EDB)	0.205	0.0050	0.020	ug/L	0.250		81.8	70-130	31.0	25	QL-04
Matrix Spike (AF73284-MS1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.240	0.0040	0.010	ug/L	0.250	ND	96.2	70-130			
1,2-Dibromoethane (EDB)	0.226	0.0050	0.020	ug/L	0.250	ND	90.5	70-130			
Matrix Spike Dup (AF73284-MSD1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.253	0.0040	0.010	ug/L	0.250	ND	101	70-130	4.99	25	
1,2-Dibromoethane (EDB)	0.235	0.0050	0.020	ug/L	0.250	ND	93.9	70-130	3.78	25	

Chlorinated Acids by EPA Method 515.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73233 - Herbicides											
Blank (AF73233-BLK1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	ND	0.40	2.0	ug/L							U
2,4-D	ND	0.80	10	ug/L							U
Dalapon	ND	6.0	10	ug/L							U
Dinoseb	ND	0.80	2.0	ug/L							U
Pentachlorophenol	ND	0.20	0.20	ug/L							U
Picloram	ND	0.50	1.0	ug/L							U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L							U
Surrogate: DCAA	*13.5*			*ug/L*	*15.0*		*89.8*	*70-130*			
LCS (AF73233-BS1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.04	0.40	2.0	ug/L	1.92		107	70-130			
2,4-D	2.18	0.80	10	ug/L	1.92		113	48-124			J
Dalapon	12.4	6.0	10	ug/L	12.5		99.6	40-112			
Dinoseb	4.85	0.80	2.0	ug/L	6.42		75.5	20-105			
Pentachlorophenol	1.08	0.20	0.20	ug/L	0.960		113	70-130			
Picloram	1.14	0.50	1.0	ug/L	0.960		119	70-130			
2,4,5-TP (Silvex)	0.927	0.50	1.0	ug/L	0.960		96.6	70-130			J
Surrogate: DCAA	*12.7*			*ug/L*	*15.0*		*84.6*	*70-130*			
LCS Dup (AF73233-BSD1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.00	0.40	2.0	ug/L	1.92		104	70-130	2.40	50	
2,4-D	2.20	0.80	10	ug/L	1.92		114	48-124	1.06	50	J
Dalapon	13.0	6.0	10	ug/L	12.5		104	40-112	4.70	50	
Dinoseb	5.56	0.80	2.0	ug/L	6.42		86.6	20-105	13.7	50	
Pentachlorophenol	1.07	0.20	0.20	ug/L	0.960		111	70-130	1.72	50	
Picloram	1.07	0.50	1.0	ug/L	0.960		111	70-130	6.59	50	
2,4,5-TP (Silvex)	1.04	0.50	1.0	ug/L	0.960		108	70-130	11.0	50	
Surrogate: DCAA	*14.8*			*ug/L*	*15.0*		*98.4*	*70-130*			

Chlorinated Acids by EPA Method 515.1 - Quality Control

Batch AF73233 - Herbicides

Matrix Spike (AF73233-MS1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.05	0.40	2.0	ug/L	1.92	ND	107	70-130			
2,4-D	2.25	0.80	10	ug/L	1.92	ND	117	48-124			J
Dalapon	12.3	6.0	10	ug/L	12.5	ND	98.8	40-112			
Dinoseb	6.04	0.80	2.0	ug/L	6.42	ND	94.1	20-105			
Pentachlorophenol	1.03	0.20	0.20	ug/L	0.960	ND	107	70-130			
Picloram	0.949	0.50	1.0	ug/L	0.960	ND	98.9	70-130			J
2,4,5-TP (Silvex)	1.07	0.50	1.0	ug/L	0.960	ND	111	70-130			
Surrogate: DCAA	*15.6*			*ug/L*	*15.0*		*104*	*70-130*			

Matrix Spike Dup (AF73233-MSD1) **Source: 17F0087-01** Prepared: 06/08/17 Analyzed: 06/15/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bentazon	2.07	0.40	2.0	ug/L	1.92	ND	108	70-130	0.779	50	
2,4-D	2.06	0.80	10	ug/L	1.92	ND	108	48-124	8.44	50	J
Dalapon	10.7	6.0	10	ug/L	12.5	ND	85.8	40-112	14.2	50	
Dinoseb	5.26	0.80	2.0	ug/L	6.42	ND	82.0	20-105	13.8	50	
Pentachlorophenol	0.914	0.20	0.20	ug/L	0.960	ND	95.3	70-130	12.0	50	
Picloram	1.01	0.50	1.0	ug/L	0.960	ND	106	70-130	6.54	50	
2,4,5-TP (Silvex)	0.958	0.50	1.0	ug/L	0.960	ND	99.8	70-130	10.8	50	J
Surrogate: DCAA	*14.4*			*ug/L*	*15.0*		*95.9*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Carbamates by EPA Method 531.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73245 - HPLC											
Blank (AF73245-BLK1)					Prepared & Analyzed: 06/12/17						
Carbofuran	ND	0.90	5.0	ug/L							U
Oxamyl	ND	1.0	20	ug/L							U
LCS (AF73245-BS1)					Prepared & Analyzed: 06/12/17						
Carbofuran	19.0	0.90	5.0	ug/L	20.0		94.9	80-120			
Oxamyl	21.2	1.0	20	ug/L	20.0		106	80-120			
LCS Dup (AF73245-BSD1)					Prepared & Analyzed: 06/12/17						
Carbofuran	22.2	0.90	5.0	ug/L	20.0		111	80-120	15.6	20	
Oxamyl	23.7	1.0	20	ug/L	20.0		119	80-120	11.1	20	
Matrix Spike (AF73245-MS1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	20.9	0.90	5.0	ug/L	20.0	ND	105	65-135			
Oxamyl	24.3	1.0	20	ug/L	20.0	ND	122	65-135			
Matrix Spike Dup (AF73245-MSD1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	24.1	0.90	5.0	ug/L	20.0	ND	120	65-135	14.0	20	
Oxamyl	24.5	1.0	20	ug/L	20.0	ND	122	65-135	0.591	20	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Endothall by EPA Method 548.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73184 - EPA 548.1											
Blank (AF73184-BLK1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	ND	20	45	ug/L							U
LCS (AF73184-BS1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	216	20	45	ug/L	200		108	80-120			
LCS Dup (AF73184-BSD1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	208	20	45	ug/L	200		104	80-120	3.81	30	
Matrix Spike (AF73184-MS1)		**Source: 17F0087-01**			Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	31.0	20	45	ug/L	200	ND	15.5	80-120			QM-07, J

Glyphosate by EPA Method 547 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73108 - HPLC											
Blank (AF73108-BLK1)					Prepared & Analyzed: 06/05/17						
Glyphosate	ND	3.0	25	ug/L							U
LCS (AF73108-BS1)					Prepared & Analyzed: 06/05/17						
Glyphosate	107	3.0	25	ug/L	120		89.1	70-130			
LCS Dup (AF73108-BSD1)					Prepared & Analyzed: 06/05/17						
Glyphosate	105	3.0	25	ug/L	120		87.7	70-130	1.54	30	
Matrix Spike (AF73108-MS1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	96.7	3.0	25	ug/L	120	ND	80.6	70-130			
Matrix Spike Dup (AF73108-MSD1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	106	3.0	25	ug/L	120	ND	88.1	70-130	8.89	30	

Todd Groundwater	Project Manager:	Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project:	SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number:	[none]	07/12/17 13:59

Diquat by EPA Method 549.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73099 - HPLC											
Blank (AF73099-BLK1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	ND	2.0	4.0	ug/L							U
LCS (AF73099-BS1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	16.4	2.0	4.0	ug/L	20.0		82.2	70-130			
LCS Dup (AF73099-BSD1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	17.6	2.0	4.0	ug/L	20.0		88.0	70-130	6.84	25	
Matrix Spike (AF73099-MS1)		**Source: 17F0087-01**			Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	18.9	2.0	4.0	ug/L	20.0	ND	94.6	70-130			

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration, detected but not quantified (DNQ).
QL-04	The LCS/LCSD RPD for this analyte was outside of established control limits. Batch accepted based on acceptable recovery for both LCS/LCSD.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
T-14	Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time.
U	Analyte included in analysis, but not detected at or above MDL.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

ASBESTOS TEM LABORATORIES, INC.

EPA 600/4-83 Drinking Water
Transmission Electron Microscopy
Analytical Report

Laboratory Job #349917

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429

ASBESTOS TEM LABORATORIES, INC

Certified by
CA DPH ELAP
Lab No. 1866

Jun/16/2017

David S. Pingatore
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

RE: LABORATORY JOB # 349917
Transmission electron microscopy analytical results for 1 water sample(s).
Job Site:
Job No.: 17F0149

Enclosed please find results for the TEM analysis of one or more water samples. The analytical procedures were performed according to EPA Method 100.2 for the analysis of asbestos in drinking water.

Prior to analysis, samples are checked for damage, disruption of any chain-of-custody seals, and completeness of accompanying paperwork. If no problems are found, samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Preparation of water samples is performed within a HEPA filtered, Class 100 air, laminar flow clean bench environment. Prior to filtration, water sample containers are ultrasonicated, and the exterior surfaces cleaned. An aliquot of water is drawn from the sample container and drawn through a special filtration apparatus and collected onto a mixed cellulose ester (MCE) or polycarbonate (PC) filter. The filters are removed from the apparatus and dried. A portion of each sample filter is sectioned, placed onto a glass microscope slide, and carbon coated. The filters are further sectioned and placed carbon side up onto 200-mesh copper TEM sample grids in a solvent bath until all filter material is dissolved. The TEM grids are removed and placed into labeled grid storage boxes.

TEM analysis is performed on a Philips EM-300 or CM-12 transmission electron microscope operating at 80 or 100 kV. Initially, the grid is scanned at low and medium magnification to insure proper sample loading, and coherence of the carbon support film. Then TEM grid openings are analyzed at a magnification of 10,000X. All fibers >10 um in length and exhibiting an aspect ratio >3:1 are analyzed. Scanning continues until either 100 asbestiform fibers >10um in length are counted, or an analytical sensitivity of 0.2 million fibers per liter (MFL) is achieved. Analyzed fibers are subjected to detailed morphological and selected area diffraction (SAED) analysis. Fibers indicated as asbestos, or potentially asbestos, are further analyzed by energy dispersive X-ray (EDX) analysis as needed. The number of asbestos fibers detected, and other analytical parameters, are then used to calculate the concentration of asbestos in MFL. The results are entered into a standard report format and reviewed by the analyst and the laboratory manager before release to the client.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY
ANALYTICAL REPORT

Contact: David S. Pingatore

Address: Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

Job Site / No. 17F0149

Report No.: **349917**

Date: Jun-16-17

Total Samples Analyzed: 1

Sample Collector:

CLIENT SAMPLE # **17F0149-01**

Laboratory Sample # 1288-01172-001

SAMPLE LOCATION/DESCRIPTION

LGRS-04: Rotary Meduim [Medium]

WATER SAMPLE DATA

Date/Time Collected	Jun-01-17 / 11:35 am		Volume Submitted (ml)	1000
Date/Time Lab Received	Jun-02-17 / 11:53 am		Volume Filtered (ml)	15
Date/Time Filtered	Jun-02-17 / 3:30 pm		Filter & Pore Size	MCE0.22
Date/Time Analyzed	Jun-16-17 / 1:40 pm		UV/Ozone Treated:	No

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		OTHER	
CHRYS	AMPH	AMBIG	NON-ASB
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	AMPH	TOTAL
< 0.2 MFL	< 0.2 MFL	< 0.2 MFL

COMMENTS

No Asbestos Detected.

Filter Loading: MODERATE

SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	8	Analytical Sensitivity	0.2 MFL
Grid Opening Area (mm2)	0.0088	95% UCL	0.70 MFL
Scan Area (mm2)	0.0704	95% LCL	0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-18555	Analytical Sensitivity	0.01 MFL
Grid Openings Scanned at 10,000X	8	Asbestos Structure Concentration	<0.01 MFL
Volume Filtered (ml)	300		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	MFL = Millions of Fibers per Liter
NSD - No Structures Detected	UCL = Upper Confidence Level
1 mm = 1 millimeter	LCL = Lower Confidence Level

Analyzed by Yang Zhang

Crystal Replogle

Reviewed by Crystal Replogle

349917

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0149

SENDING LABORATORY:	RECEIVING LABORATORY:
Alpha Analytical Laboratories, Inc.	Asbestos TEM Laboratories, Inc.
208 Mason St.	630 Bancroft Way
Ukiah, CA 95482	Berkeley, CA 94710
Phone: (707)468-0401	Phone :(510) 704-8930
Fax: (707)468-5267	Fax: (510) 704-8429
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	Due	Expires	Comments
17F0149-01 LGRS-04: Rotary Medium [Water] Sampled 06/01/17 11:35			
Asbestos-DW SUB	06/16/17 12:00	06/03/17 11:35	7.3 8.4

Containers Supplied:

1L Amber- Unpres. (J)   1L Amber- Unpres. (K)

☐ *Report to State*

System Name: ________ **Employed by:** ________

User ID: ________ **Sampler:** ________

System Number: ________

Released By	Date	Received By	Date
	6/2/17		11:53 RECEIVED JUN 02 2017

Page 1 of 1

Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Suite 1
El Dorado Hills, CA 95762

June 14, 2017

Ceres ID: 11451

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482

The following report contains the results for the one drinking water sample received on June 7, 2017. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under Alpha Analytical Laboratories' project # 17F0149.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
11451-001	LGRS-04: Rotary Medium 17F0149-01	6/7/2017	6/1/2017	11:35

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample **Method Blank**		**Date Received:** NA
	QC Batch #: 1610	**Date Extracted:** 6/12/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0149	**Sample Size:** 1.000 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.44	1.35	5.00		13C-2378-TCDD	103	31-137	
					CRS			
					37Cl4-2378-TCDD	91.3	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample		**Date Received:** NA
Ongoing Precision and Recovery	**QC Batch #:** 1610	**Date Extracted:** 6/12/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0149	**Sample Size:** 1.000 L	

Analyte	**Conc. (ng/mL)**	**Limits** (a)	**Labeled Standards**	**% Rec.**	**Limits** (a)
2,3,7,8-TCDD	9.36	7.3-14.6	13C-2378-TCDD	104	25-141
			CRS		
			37Cl4-2378-TCDD	96.2	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH **Reviewed by: BS**

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: LGRS-04: Rotary Medium 17F0149-01

Project ID:	17F0149	**Ceres Sample ID:**	11451-001	**Date Received:**	6/7/2017
		QC Batch #:	1610	**Date Extracted:**	6/12/2017
Date Collected:	6/1/2017	**Matrix:**	Drinking Water	**ZB-5MS Analysis:**	6/13/2017
Time Collected:	11:35 AM	**Sample Size:**	1.023 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.47	1.35	4.89		13C-2378-TCDD	103	31-137	
					CRS			
					37Cl4-2378-TCDD	101	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0149

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc.	Ceres Labs
208 Mason St.	4919 Windplay Dr.
Ukiah, CA 95482	El Dorado Hills, CA 95762
Phone: (707)468-0401	Phone :(916) 932-5011
Fax: (707)468-5267	Fax: (916) 932-5017
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	**Due**	**Expires**	**Comments**
17F0149-01 LGRS-04: Rotary Medium [Water] Sampled 06/01/17 11:35			
Dioxin 2378 TCDD DW 1613	06/16/17 12:00	06/01/18 11:35	

Containers Supplied:

1L Amber- Unpres. (AB) 1L Amber- Unpres. (AC)

☐ *Report to State*

System Name: ______ **Employed by:** ______

User ID: ______ **Sampler:** ______

System Number: ______

+QC

	6-5-17		6/7/17 09:51
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Sample Receipt Check List

Ceres ID: 11451	Date/Time: 6/7/17 0951
Client Project ID: 17F0149	Received Temp: 3.7 °C Acceptable: [✓ Y] / N
Chain of Custody Relinquished by signed?	[✓ Y] / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	[✓ NA]
Unlabeled / Illegible Samples	Y / [✓ N]
Proper Containers:	[✓ Y] / N
Preservation Acceptable (Chemical or Temperature)?	[✓ Y] / N
Drinking Water, Sodium Thiosulfate present?	Y / [✓ N] / NA
Residual Cl?	Y / [✓ N]
Aqueous sample pH: 7	
List COC discrepancies: 6/7/17	
List Damaged Samples: 6/7/17	

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

eurofins Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

AT-1807

Laboratory Report

for

Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482
Attention: David S. Pingatore
Fax: 707-468-5267

Date of Issue
06/21/2017
EUROFINS EATON ANALYTICAL, INC.

ORELAP 4034

M5B: Magnolia Busse
Project Manager

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.

* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.

* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.

* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Arizona	AZ0778	**Montana**	Cert 0035
Arkansas	Certified	**Nebraska**	Certified
California-Monrovia-ELAP	2813	**Nevada**	CA00006-2016
California-Colton- ELAP	2812	**New Hampshire ***	2959
California-Folsom- ELAP	2820	**New Jersey ***	CA 008
California-Fresno- ELAP	2966	**New Mexico**	Certified
Colorado	Certified	**New York ***	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida *	E871024	**Oregon (Primary AB) ***	**ORELAP 4034**
Georgia	947	**Pennsylvania ***	68-565
Guam	16-003r	**Puerto Rico**	Certified
Hawaii	Certified	**Rhode Island**	LAO00326
Idaho	Certified	**South Carolina**	87016
Illinois *	200033	**South Dakota**	Certified
Indiana	C-CA-01	**Tennessee**	TN02839
Kansas *	E-10268	**Texas ***	T104704230-15-9
Kentucky	90107	**Utah ***	CA000062016-10
Louisiana *	LA16003	**Vermont**	VT0114
Maine	CA0006	**Virginia ***	460260
Maryland	224	**Washington**	C838
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	Certified
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.

Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-S$^=$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

Acknowledgement of Samples Received

Addr: **Alpha Analytical Laboratories, Inc.**
208 Mason Street
Ukiah, CA 95482

Client ID: ALPHA-UKIAH
Folder #: 664415
Project: DRINKING
Sample Group: ORGANICS - EPA 500's

Attn: David S. Pingatore
Phone: 925 828 6226

Project Manager: Magnolia Busse
Phone: 916-605-3387
PO #: 17F0151

The following samples were received from you on **June 06, 2017** at **09:53**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
201706060519	LGRS-05: Rotary Deep	06/01/2017 1005
	Variable ID: 17F0151-01	
	@525_FGL_SHORT	

Test Description

@525_FGL_SHORT -- Semivolatiles by GCMS

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0151

664415 9/7

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Eurofins Eaton Analytical Inc.
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016
Phone :626-568-6463
Fax: 626-568-6324
Terms: Net 30

Analysis	Due	Expires	Comments
17F0151-01 LGRS-05: Rotary Deep [Water] Sampled 06/01/17 10:05			
525.2 DDW SVOC Reg3	06/16/17 12:00	06/15/17 10:05	

Containers Supplied:

1L Amber-HCl (U) 1L Amber-HCl (V)

☐ *Report to State*

System Name:

User ID:

System Number:

Employed by:

Sampler:

+QC

Released By 6.5.17 Date

Received By YUDI 6/6/17 9:53 Date

Released By Date Received By Date

Page 1 of 1

Eurofins Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

The Comments Report may be blank if there are no comments for this report.

Laboratory Hits

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL

SUMMARY OF POSITIVE DATA ONLY

Laboratory Data

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

LGRS-05: Rotary Deep (201706060519) **Sampled on 06/01/2017 1005**

Variable ID: 17F0151-01

EPA 525.2 - Semivolatiles by GCMS

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	96	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Acenaphthene-d10	82	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Chrysene-d12	93	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Perylene-d12	92	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Phenanthrene-d10	86	%		1

Rounding on totals after summation.
(c) - indicates calculated results

Semivolatiles by GCMS

Prep Batch: 1002467 **Analytical Batch: 1003398** **Analysis Date: 06/15/2017**

201706060519 LGRS-05: Rotary Deep Analyzed by: JWC

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%

Semivolatiles by GCMS by EPA 525.2

Prep Batch: 1002467 Analytical Batch: 1003398 **Analysis Date: 06/15/2017**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			91.6	%	92	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			90.4	%	90	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			96.8	%	97	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			95.2	%	95	(70-130)		
MS_201706010849	1,3-Dimethyl-2-nitrobenzene (S)			94.0	%	94	(70-130)		
LCS1	Acenaphthene-d10 (I)			87.5	%	88	(50-150)		
LCS2	Acenaphthene-d10 (I)			97.0	%	97	(50-150)		
MBLK	Acenaphthene-d10 (I)			92.9	%	93	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			76.8	%	77	(50-150)		
MS_201706010849	Acenaphthene-d10 (I)			88.2	%	88	(50-150)		
LCS1	Benzo(a)pyrene		2	2.09	ug/L	104	(70-130)		
LCS2	Benzo(a)pyrene		2	1.95	ug/L	98	(70-130)	20	6.9
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0160	ug/L	80	(50-150)		
MS_201706010849	Benzo(a)pyrene	ND	2	1.94	ug/L	97	(70-130)		
LCS1	Chrysene-d12 (I)			86.4	%	86	(50-150)		
LCS2	Chrysene-d12 (I)			101	%	101	(50-150)		
MBLK	Chrysene-d12 (I)			94.7	%	95	(50-150)		
MRL_CHK	Chrysene-d12 (I)			76.9	%	77	(50-150)		
MS_201706010849	Chrysene-d12 (I)			95.2	%	95	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.38	ug/L	119	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.49	ug/L	125	(70-130)	20	4.5
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.317	ug/L	106	(50-150)		
MS_201706010849	Di-(2-Ethylhexyl)adipate	ND	2	2.38	ug/L	119	(70-130)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.16	ug/L	108	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.37	ug/L	119	(70-130)	20	9.3
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.614	ug/L	102	(50-150)		
MS_201706010849	Di(2-Ethylhexyl)phthalate	ND	2	2.22	ug/L	111	(70-130)		
LCS1	Perylene-d12 (S)			93.9	%	94	(70-130)		
LCS2	Perylene-d12 (S)			86.0	%	86	(70-130)		
MBLK	Perylene-d12 (S)			82.6	%	83	(70-130)		
MRL_CHK	Perylene-d12 (S)			88.6	%	89	(70-130)		
MS_201706010849	Perylene-d12 (S)			85.6	%	86	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Alpha Analytical Laboratories, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Phenanthrene-d10 (I)			92.3	%	92	(50-150)		
LCS2	Phenanthrene-d10 (I)			101	%	101	(50-150)		
MBLK	Phenanthrene-d10 (I)			103	%	103	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			78.7	%	79	(50-150)		
MS_201706010849	Phenanthrene-d10 (I)			94.9	%	95	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

FGL
ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

June 21, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706726
Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
LGRS-04:Rotary Medium	06/01/2017	06/06/2017	SP 1706726-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	06/08/2017:208502 All analysis quality controls are within established criteria
	06/07/2017:206693 All preparation quality controls are within established criteria
903.0	06/14/2017:208817 All analysis quality controls are within established criteria
	06/11/2017:206813 All preparation quality controls are within established criteria
905.0	06/11/2017:208752 All analysis quality controls are within established criteria
	06/08/2017:206809 All preparation quality controls are within established criteria
906.0	06/08/2017:208428 All analysis quality controls are within established criteria
	06/06/2017:206665 All preparation quality controls are within established criteria

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706726
Customer : 2-20626

Radio QC

Ra - 05	06/19/2017:209052 All analysis quality controls are within established criteria
	06/15/2017:206808 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**

Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-06-21

June 21, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706726-001
Customer ID : 2-20626

Sampled On : June 1, 2017-11:35
Sampled By : Not Available
Received On : June 6, 2017-10:00
Matrix : Water

Description : LGRS-04:Rotary Medium
Project : 17F0149

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.36 ± 0.660	0.599	pCi/L	15/5	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-12:50 2A1708502
Gross Beta	0.648 ± 0.579	0.731	pCi/L	50	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-12:50 2A1708502
Strontium 90	0.782 ± 0.434	0.491	pCi/L	8	905.0	06/08/17-18:20 2P1706809	905.0	06/11/17-16:30 2A1708752
Total Alpha Radium (226)	0.000 ± 0.123	0.363	pCi/L	3	903.0	06/11/17-16:30 2P1706813	903.0	06/14/17-15:10 2A1708817
Tritium	200 ± 276	434	pCi/L	20000	906.0	06/06/17-15:05 2P1706665	906.0	06/08/17-04:00 2A1708428
Ra 228	0.000 ± 0.209	0.192	pCi/L	2	Ra - 05	06/15/17-18:45 2P1706808	Ra - 05	06/19/17-19:00 2A1709052

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706726
Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	06/08/17:208502aat	CCV	cpm	8767	41.7 %	35-47	
			CCB	cpm		0.100	0.18	
Beta	900.0	06/08/17:208502aat	CCV	cpm	8767	86.8 %	83-94	
			CCB	cpm		0.3800	0.48	
Gross Alpha	900.0	06/07/17:206693aat	Blank	pCi/L		1.00	3	
			LCS	pCi/L	108.2	91.5 %	75-125	
			BS	pCi/L	108.2	106 %	60-140	
			BSD	pCi/L	108.2	126 %	60-140	
			BSRPD	pCi/L	108.2	17.0%	≤30	
Gross Beta	900.0	06/07/17:206693aat	Blank	pCi/L		-0.54	4	
			LCS	pCi/L	73.11	105 %	93-144	
			BS	pCi/L	73.11	91.1 %	80-130	
			BSD	pCi/L	73.11	97.8 %	80-130	
			BSRPD	pCi/L	108.2	7.2%	≤30	
Alpha	903.0	06/14/17:208817rmm	CCV	cpm	8385	42.3 %	37-46	
			CCB	cpm		0.0600	0.16	
Total Alpha Radium (226)	903.0	06/11/17:206813emv	RgBlk	pCi/L		0.06	2	
			LCS	pCi/L	21.85	66.8 %	52-107	
			BS	pCi/L	21.85	63.4 %	43-111	
			BSD	pCi/L	21.85	56.1 %	43-111	
			BSRPD	pCi/L	21.85	12.3%	≤35.5	
Beta	905.0	06/11/17:208752rmm	CCV	cpm	8766	88.1 %	85-93	
			CCB	cpm		0.4600	0.51	
Total Strontium	905.0	06/08/17:206809emv	RgBlk	pCi/L		-0.002	2	
			LRS	pCi/L	36.69	78.5 %	53-133	
			BS	pCi/L	36.69	97.5 %	75-125	
			BSD	pCi/L	36.69	97.8 %	75-125	
			BSRPD	pCi/L	36.69	0.3%	≤20	
Tritium	906.0	06/06/17:206665elc	Blank	pCi/L		-7	<300	
			LCS	pCi/L	1678	108 %	75-125	
			BS	pCi/L	1678	96.9 %	75-125	
			BSD	pCi/L	1678	105 %	75-125	
			BSRPD	pCi/L	1678	7.6%	≤25	
	906.0	06/08/17:208428elc	CCV	pCi/L	28900	103 %	90-110	
			CCB	pCi/L		246	500	
Beta	Ra - 05	06/19/17:209052emv	CCV	cpm	8759	89.9 %	84-94	
			CCB	cpm		0.3800	0.51	
Ra 228	Ra - 05	06/15/17:206808emv	RgBlk	pCi/L		0.01	3	
			LRS	pCi/L	37.60	84.8 %	65-108	
			BS	pCi/L	37.60	104 %	75-125	
			BSD	pCi/L	37.60	102 %	75-125	
			BSRPD	pCi/L	37.60	1.4%	≤25	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS : Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.

Quality Control - Radio

Definition	
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35, Dublin CA 94568
925-828-6226 F) 925-828-6309

Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 17F0149 Pg 1 of 1

Report to	Invoice to (if different)	Project Information
Company: Todd Groundwater	**Contact:**	**Project ID:** SCVWD IPR JD Morgan Park
Attn: Amber J Ritchie, GIT	**Email address:**	**Project No:**
Address: 2490 Mariner Square Loop, Suite 215 Alameda CA 94501	**Address:**	**PO Number:** 37809
Phone/Fax: 510-747.6920 x103; 846.633.9712	**Phone/Fax:**	
Email Address: aritchie@toddgroundwater.com		

Field Sampler - Printed Name & Signature:

Signature below authorizes work under terms stated on reverse side.

TAT
Standard 10 days ●
RUSH:
5 days ○
48 hours ○
Other: ____days ○
Lab preapproval required

Temp upon Receipt °C
Ukiah temp: 3.2°
Dublin temp: 2.0°C
Elk Grove temp:

Analysis Request

Sample Identification	Sampling Date	Sampling Time	Container: 40ml Vial	Container: Poly	Container: Glass	Container: Sleeve	Container: Other	Preservative: HCl	Preservative: HNO3	Preservative: H2SO4	Preservative: Other	Preservative: None	Matrix: Water	Matrix: Soil	Matrix: Other	Total Number of Containers per Sample ID	DU - General Physical 500 ml	Inorganics / general Mineral / Perchlorte / U 200.8	Cr6 218.6 DW	524.2 DDW Volatiles	DDW 504.1 507 508 515.1 525.2 531.1 547 548 549	DU pull - Asbestos DW (sub TEM) JL	Dioxin 2,3,7,8 TCDD (sub Ceres)	Gross Alpha & Beta (sub FGL)	Radium 226 & 228 (sub FGL)	Strontium 90 / Tritium (sub FGL)	j-flag MDL format	Sample Notes or DDW Source Numbers:
LGRS-04: Rotary Medium **Morgan Park 02**	6-1-17	1135											x			1	x										x	
													x			3		x										
													x			1			x									
													x			4				x								
													x			16					x							
													x			2						x						
													x			2							x					
													x			1								x				
													x			3									x			
													x			3										x		

Relinquished by	Received by	Date	Time
		6-1-17	1555
	RS	6/1/17	1815
RS		6-1-17	18:55
		6-1-17	21:50

DDW Write On EDT Transmission? ○ Yes ● No
State System Number: ____
If "Y" please enter the Source Number(s) in the column above

CA Geotracker EDF Report? ○ Yes ○ No
Global ID:
Sampling Company Log Code:
EDF to (Email Address):
Travel and Site Time:
Mileage:
Misc. Supplies:

alpha™
Alpha Analytical Laboratories Inc. e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

12 July 2017

Todd Groundwater
Amber Ritchie
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
RE: SCVWD IPR JD Morgan Park
Work Order: 17F0151

Enclosed are the results of analyses for samples received by the laboratory on 06/01/17 21:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For David S. Pingatore
Project Manager

Alpha Analytical Laboratories Inc.
e-mail: clientservices@alpha-labs.com
Corporate: 208 Mason St., Ukiah, CA 95482 • Phone: (707) 468-0401 • Fax: (707) 468-5267
Bay Area: 6398 Dougherty Rd., Suite 35, Dublin, CA 94568 • Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 • Phone: (916) 686-5190 • Fax: (916) 686-5192

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda CA, 94501

Project Manager: Amber Ritchie
Project: SCVWD IPR JD Morgan Park
Project Number: [none]

Reported:
07/12/17 13:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LGRS-05: Rotary Deep	17F0151-01	Water	06/01/17 10:05	06/01/17 21:50

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-05: Rotary Deep

17F0151-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Metals (Drinking Water) by EPA 200 Series Methods										
Calcium	**56**	0.20	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	EPA 200.7	
Iron	**120**	20	100	ug/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	EPA 200.7	
Magnesium	**20**	0.030	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	EPA 200.7	
Mercury	ND	0.060	1.0	ug/L	1	AF73384	06/12/17 08:55	06/12/17 12:49	EPA 245.1	U
Potassium	**1.4**	0.040	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	EPA 200.7	
Sodium	**18**	0.020	1.0	mg/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	EPA 200.7	
Metals by EPA 200 Series Methods										
Chromium, hexavalent	**0.99**	0.050	1.0	ug/L	1	AF73168	06/06/17 21:37	06/06/17 21:37	EPA 218.6	J
Metals by EPA Method 200.8 ICP/MS										
Aluminum	**11**	8.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Antimony	**1.7**	0.080	6.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Arsenic	**1.0**	0.80	2.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Barium	**62**	0.20	100	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Beryllium	ND	0.080	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Cadmium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Chromium	**15**	0.32	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	
Copper	**0.69**	0.20	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Lead	ND	0.080	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Manganese	**7.5**	0.20	20	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Nickel	**14**	0.24	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	
Selenium	ND	0.80	5.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Silver	ND	0.20	10	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Thallium	ND	0.20	1.0	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	U
Uranium	**0.38**	0.080	1.0	pCi/l	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J
Zinc	**2.3**	2.0	50	ug/L	4	AF73110	06/07/17 09:43	06/08/17 14:30	EPA 200.8	J

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-05: Rotary Deep

17F0151-01(Water)

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Aggressive Index	**11.86**		2.00	NU	1	AF73148	06/07/17 09:22	06/16/17 06:32	AWWA	
Bicarbonate	**180**	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	
Carbonate	ND	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	U
Color	**5.0**	3.0	5.0	CU	1	AF73079	06/01/17 20:10	06/01/17 20:10	SM2120B	
Hydroxide	ND	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	U
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L	1	AE74270	06/02/17 14:00	06/07/17 14:15	SM5540C	U
Odor	ND		1.0	T.O.N.	1	AF73079	06/01/17 20:10	06/01/17 20:10	EPA 140.1	U
Perchlorate	ND	0.90	4.0	ug/L	1	AF73107	06/05/17 09:05	06/05/17 14:14	EPA 314.0	U
pH	**7.56**	1.68	1.68	pH Units	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM4500-H+ B	T-14
Specific Conductance (EC)	**520**	1.0	20	umhos/cm	1	AF73128	06/02/17 16:00	06/02/17 17:00	SM2510B	
Total Dissolved Solids	**310**	5.0	10	mg/L	1	AF73199	06/07/17 08:14	06/14/17 14:15	SM2540C	
Turbidity	**0.080**	0.050	0.10	NTU	1	AF73080	06/02/17 16:15	06/02/17 16:15	SM2130B	J
Total Alkalinity as CaCO3	**140**	1.0	5.0	mg/L	1	AE74242	06/06/17 08:00	06/06/17 12:00	SM2320B	
Nitrate + Nitrite as N	**1.8**	0.0086	0.40	mg/L	1	AF73143	06/06/17 09:19	06/09/17 09:40	Calculation	
Hardness, Total	**220**	1	5	mg/L	1	AF73148	06/07/17 09:22	06/14/17 16:01	SM2340B	

Miscellaneous Physical/Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Cyanide (total)	ND	0.0020	0.10	mg/L	1	AF73140	06/06/17 12:40	06/06/17 12:40	10-204-00-1X	U

Anions by EPA Method 300.0

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**35**	1.0	5.0	mg/L	10	AF73063	06/02/17 21:28	06/02/17 21:28	EPA 300.0	
Fluoride	**0.11**	0.070	0.10	mg/L	1	AF73063	06/02/17 21:45	06/02/17 21:45	EPA 300.0	
Nitrate as N	**1.8**	0.040	0.40	mg/L	1	AF73063	06/02/17 21:45	06/02/17 21:45	EPA 300.0	
Nitrite as N	ND	0.050	0.40	mg/L	1	AF73063	06/02/17 21:45	06/02/17 21:45	EPA 300.0	U
Sulfate as SO4	**44**	2.0	5.0	mg/L	10	AF73063	06/02/17 21:28	06/02/17 21:28	EPA 300.0	

LGRS-05: Rotary Deep

17F0151-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Volatile Organic Compounds by EPA Method 524.2										
Benzene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Carbon tetrachloride	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Chlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,1-Dichloroethane	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,2-Dichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,1-Dichloroethene	**6.1**	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,2-Dichloropropane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Ethylbenzene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Methylene chloride	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Styrene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Tetrachloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Toluene	ND	0.30	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
1,1,1-Trichloroethane	**2.9**	0.40	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Trichloroethene	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Trichlorofluoromethane	ND	0.50	5.0	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Trichlorotrifluoroethane	**0.64**	0.40	10	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	J
Vinyl chloride	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Xylenes (total)	ND	0.50	0.50	ug/L	1	AF73226	06/06/17 15:00	06/07/17 16:38	EPA 524.2	U
Surrogate: Bromofluorobenzene			*99.4 %*	*70-130*		*AF73226*	*06/06/17 15:00*	*06/07/17 16:38*	*EPA 524.2*	
Surrogate: Dibromofluoromethane			*88.1 %*	*70-130*		*AF73226*	*06/06/17 15:00*	*06/07/17 16:38*	*EPA 524.2*	
Surrogate: Toluene-d8			*91.8 %*	*70-130*		*AF73226*	*06/06/17 15:00*	*06/07/17 16:38*	*EPA 524.2*	

LGRS-05: Rotary Deep

17F0151-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chlorinated Pesticides and PCBs by EPA Method 508										
Endrin	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Heptachlor	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Heptachlor epoxide	ND	0.010	0.010	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Hexachlorobenzene	ND	0.010	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Methoxychlor	ND	0.020	10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1016	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1221	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1232	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1242	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1248	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1254	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
PCB-1260	ND	0.030	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Total PCBs	ND	0.30	0.50	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Toxaphene	ND	0.40	1.0	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Chlordane (tech)	ND	0.030	0.10	ug/L	1	AF73122	06/05/17 11:57	06/10/17 04:57	EPA 508	U
Surrogate: Dibutylchlorendate			*84.5 %*	*70-130*		*AF73122*	*06/05/17 11:57*	*06/10/17 04:57*	*EPA 508*	
Nitrogen- and Phosphorus- Pesticides by EPA Method 507										
Alachlor	ND	0.50	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:58	EPA 507	U
Atrazine	ND	0.30	0.50	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:58	EPA 507	U
Molinate	ND	0.20	2.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:58	EPA 507	U
Simazine	ND	0.30	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:58	EPA 507	U
Thiobencarb	ND	0.20	1.0	ug/L	1	AF73181	06/06/17 14:50	06/09/17 04:58	EPA 507	U
Surrogate: 1,3-Dimethyl-2-nitrobenzene			*92.6 %*	*70-130*		*AF73181*	*06/06/17 14:50*	*06/09/17 04:58*	*EPA 507*	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

LGRS-05: Rotary Deep

17F0151-01(Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organic Analytes by EPA Method 504.1										
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L	1	AF73284	06/12/17 07:00	06/13/17 01:13	EPA 504.1	U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L	1	AF73284	06/12/17 07:00	06/13/17 01:13	EPA 504.1	U
Chlorinated Acids by EPA Method 515.1										
Bentazon	ND	0.40	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
2,4-D	ND	0.80	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
Dalapon	ND	6.0	10	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
Dinoseb	ND	0.80	2.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
Pentachlorophenol	ND	0.20	0.20	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
Picloram	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L	1	AF73233	06/08/17 07:00	06/15/17 02:29	EPA 515.1	U
Surrogate: DCAA			*99.7 %*	*70-130*		*AF73233*	*06/08/17 07:00*	*06/15/17 02:29*	*EPA 515.1*	
Carbamates by EPA Method 531.1										
Carbofuran	ND	0.90	5.0	ug/L	1	AF73245	06/12/17 07:39	06/13/17 02:21	EPA 531.1	U
Oxamyl	ND	1.0	20	ug/L	1	AF73245	06/12/17 07:39	06/13/17 02:21	EPA 531.1	U
Endothall by EPA Method 548.1										
Endothall	ND	20	45	ug/L	1	AF73184	06/07/17 15:25	06/08/17 22:25	EPA 548.1	U
Glyphosate by EPA Method 547										
Glyphosate	ND	3.0	25	ug/L	1	AF73108	06/05/17 09:32	06/05/17 20:12	EPA 547	U
Diquat by EPA Method 549.2										
Diquat	ND	2.0	4.0	ug/L	1	AF73099	06/05/17 06:25	06/07/17 17:50	EPA 549.2	U

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Batch AF73148 - Metals Digest

Blank (AF73148-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	ND	0.20	1.0	mg/L							U
Iron	ND	20	100	ug/L							U
Magnesium	ND	0.030	1.0	mg/L							U
Potassium	ND	0.040	1.0	mg/L							U
Sodium	0.0725	0.020	1.0	mg/L							J

LCS (AF73148-BS1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	7.46	0.20	1.0	mg/L	8.00		93.3	85-115			
Iron	1880	20	100	ug/L	2000		94.2	85-115			
Magnesium	7.41	0.030	1.0	mg/L	8.00		92.6	85-115			
Potassium	7.35	0.040	1.0	mg/L	8.00		91.9	85-115			
Sodium	8.01	0.020	1.0	mg/L	8.00		100	85-115			

Duplicate (AF73148-DUP1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	81.2	0.20	1.0	mg/L		78.7			3.08	20	
Iron	40.8	20	100	ug/L		36.0			12.5	20	J
Magnesium	46.5	0.030	1.0	mg/L		45.7			1.80	20	
Potassium	1.70	0.040	1.0	mg/L		1.60			6.15	20	
Sodium	35.7	0.020	1.0	mg/L		34.6			3.27	20	

Matrix Spike (AF73148-MS1) **Source: 17F0338-05** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	90.1	0.20	1.0	mg/L	8.00	78.7	142	70-130			QM-4X
Iron	1930	20	100	ug/L	2000	36.0	94.7	70-130			
Magnesium	53.7	0.030	1.0	mg/L	8.00	45.7	100	70-130			
Potassium	9.24	0.040	1.0	mg/L	8.00	1.60	95.4	70-130			
Sodium	43.2	0.020	1.0	mg/L	8.00	34.6	107	70-130			

Matrix Spike (AF73148-MS2) **Source: 17F0124-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	23.1	0.20	1.0	mg/L	8.00	14.9	103	70-130			
Iron	4750	20	100	ug/L	2000	2280	124	70-130			
Magnesium	16.9	0.030	1.0	mg/L	8.00	9.02	98.6	70-130			
Potassium	291	0.040	1.0	mg/L	8.00	281	120	70-130			
Sodium	50.2	0.020	1.0	mg/L	8.00	43.0	90.1	70-130			

Metals (Drinking Water) by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73148 - Metals Digest											
Matrix Spike Dup (AF73148-MSD1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Calcium	92.9	0.20	1.0	mg/L	8.00	78.7	177	70-130	3.05	20	QM-4X
Iron	1980	20	100	ug/L	2000	36.0	97.1	70-130	2.47	20	
Magnesium	54.1	0.030	1.0	mg/L	8.00	45.7	106	70-130	0.773	20	
Potassium	9.27	0.040	1.0	mg/L	8.00	1.60	95.8	70-130	0.318	20	
Sodium	44.6	0.020	1.0	mg/L	8.00	34.6	125	70-130	3.27	20	
Batch AF73384 - EPA 245.1 Hg Water											
Blank (AF73384-BLK1)					Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L							U
LCS (AF73384-BS1)					Prepared & Analyzed: 06/12/17						
Mercury	2.75	0.060	1.0	ug/L	2.50		110	85-115			
Duplicate (AF73384-DUP1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	ND	0.060	1.0	ug/L		ND				20	U
Matrix Spike (AF73384-MS1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.65	0.060	1.0	ug/L	2.50	ND	106	70-130			
Matrix Spike Dup (AF73384-MSD1)		**Source: 17F0151-01**			Prepared & Analyzed: 06/12/17						
Mercury	2.63	0.060	1.0	ug/L	2.50	ND	105	70-130	0.758	20	

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73168 - General Preparation											
Blank (AF73168-BLK1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L							U
LCS (AF73168-BS1)					Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.3	0.050	1.0	ug/L	10.0		103	90-110			
Duplicate (AF73168-DUP1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	ND	0.050	1.0	ug/L		ND				20	U
Matrix Spike (AF73168-MS1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.86	0.050	1.0	ug/L	10.0	ND	98.6	90-110			
Matrix Spike (AF73168-MS2)		**Source: 17F0151-01**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	10.9	0.050	1.0	ug/L	10.0	0.990	98.6	90-110			
Matrix Spike Dup (AF73168-MSD1)		**Source: 17E2111-02**			Prepared & Analyzed: 06/06/17						
Chromium, hexavalent	9.94	0.050	1.0	ug/L	10.0	ND	99.4	90-110	0.778	20	

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Blank (AF73110-BLK1) Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	ND	2.0	50	ug/L							U
Antimony	0.0429	0.020	6.0	ug/L							J
Arsenic	0.302	0.20	2.0	ug/L							J
Barium	ND	0.050	100	ug/L							U
Beryllium	ND	0.020	1.0	ug/L							U
Cadmium	ND	0.050	1.0	ug/L							U
Chromium	0.147	0.080	10	ug/L							J
Copper	ND	0.050	50	ug/L							U
Lead	ND	0.020	5.0	ug/L							U
Manganese	ND	0.050	20	ug/L							U
Nickel	ND	0.060	10	ug/L							U
Selenium	ND	0.20	5.0	ug/L							U
Silver	ND	0.050	10	ug/L							U
Thallium	ND	0.050	1.0	ug/L							U
Uranium	ND	0.020	1.0	pCi/l							U
Zinc	ND	0.50	50	ug/L							U

LCS (AF73110-BS1) Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	556	2.0	50	ug/L	520		107	85-115			
Antimony	21.0	0.020	6.0	ug/L	20.0		105	85-115			
Arsenic	21.1	0.20	2.0	ug/L	20.0		105	85-115			
Barium	20.7	0.050	100	ug/L	20.0		103	85-115			J
Beryllium	22.6	0.020	1.0	ug/L	20.0		113	85-115			
Cadmium	20.3	0.050	1.0	ug/L	20.0		101	85-115			
Chromium	20.5	0.080	10	ug/L	20.0		102	85-115			
Copper	20.1	0.050	50	ug/L	20.0		101	85-115			J
Lead	21.2	0.020	5.0	ug/L	20.0		106	85-115			
Manganese	20.9	0.050	20	ug/L	20.0		104	85-115			
Nickel	19.9	0.060	10	ug/L	20.0		99.4	85-115			
Selenium	20.7	0.20	5.0	ug/L	20.0		104	85-115			
Silver	20.3	0.050	10	ug/L	20.0		102	85-115			
Thallium	21.2	0.050	1.0	ug/L	20.0		106	85-115			
Uranium	14.0	0.020	1.0	pCi/l	13.4		105	85-115			
Zinc	102	0.50	50	ug/L	100		102	85-115			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Duplicate (AF73110-DUP1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	77.5	8.0	50	ug/L		81.1			4.43	20	
Antimony	7.89	0.080	6.0	ug/L		7.99			1.20	20	
Arsenic	1.30	0.80	2.0	ug/L		1.55			17.4	20	J
Barium	25.3	0.20	100	ug/L		26.1			3.34	20	J
Beryllium	ND	0.080	1.0	ug/L		ND				20	U
Cadmium	ND	0.20	1.0	ug/L		ND				20	U
Chromium	1.29	0.32	10	ug/L		1.42			10.1	20	J
Copper	70.3	0.20	50	ug/L		73.4			4.41	20	
Lead	0.525	0.080	5.0	ug/L		0.520			0.956	20	J
Manganese	23.9	0.20	20	ug/L		24.9			3.86	20	
Nickel	1.99	0.24	10	ug/L		2.08			4.71	20	J
Selenium	ND	0.80	5.0	ug/L		ND				20	U
Silver	ND	0.20	10	ug/L		ND				20	U
Thallium	ND	0.20	1.0	ug/L		ND				20	U
Uranium	ND	0.080	1.0	pCi/l		ND				20	U
Zinc	76.9	2.0	50	ug/L		79.2			2.91	20	

Matrix Spike (AF73110-MS1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	600	8.0	50	ug/L	520	81.1	99.8	70-130			
Antimony	28.1	0.080	6.0	ug/L	20.0	7.99	101	70-130			
Arsenic	21.8	0.80	2.0	ug/L	20.0	1.55	101	70-130			
Barium	44.2	0.20	100	ug/L	20.0	26.1	90.4	70-130			J
Beryllium	21.1	0.080	1.0	ug/L	20.0	ND	106	70-130			
Cadmium	19.2	0.20	1.0	ug/L	20.0	ND	96.0	70-130			
Chromium	21.4	0.32	10	ug/L	20.0	1.42	99.8	70-130			
Copper	88.6	0.20	50	ug/L	20.0	73.4	76.0	70-130			
Lead	20.4	0.080	5.0	ug/L	20.0	0.520	99.2	70-130			
Manganese	43.8	0.20	20	ug/L	20.0	24.9	94.7	70-130			
Nickel	22.6	0.24	10	ug/L	20.0	2.08	102	70-130			
Selenium	23.9	0.80	5.0	ug/L	20.0	ND	119	70-130			
Silver	19.4	0.20	10	ug/L	20.0	ND	97.2	70-130			
Thallium	19.9	0.20	1.0	ug/L	20.0	ND	99.4	70-130			
Uranium	14.0	0.080	1.0	pCi/l	13.4	ND	104	70-130			
Zinc	172	2.0	50	ug/L	100	79.2	92.5	70-130			

Metals by EPA Method 200.8 ICP/MS - Quality Control

Batch AF73110 - EPA 200.8

Matrix Spike (AF73110-MS2) **Source: 17E2649-01** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	554	2.0	50	ug/L	520	109	85.6	70-130			
Antimony	21.0	0.020	6.0	ug/L	20.0	0.490	103	70-130			
Arsenic	20.3	0.20	2.0	ug/L	20.0	0.391	99.7	70-130			
Barium	72.3	0.050	100	ug/L	20.0	53.0	96.3	70-130			J
Beryllium	19.2	0.020	1.0	ug/L	20.0	ND	95.9	70-130			
Cadmium	18.9	0.050	1.0	ug/L	20.0	ND	94.5	70-130			
Chromium	18.9	0.080	10	ug/L	20.0	2.18	83.6	70-130			
Copper	682	0.050	50	ug/L	20.0	648	171	70-130			QM-4X
Lead	707	0.020	5.0	ug/L	20.0	666	209	70-130			QM-4X
Manganese	20.9	0.050	20	ug/L	20.0	2.06	94.1	70-130			
Nickel	23.9	0.060	10	ug/L	20.0	5.82	90.5	70-130			
Selenium	19.1	0.20	5.0	ug/L	20.0	0.227	94.4	70-130			
Silver	18.4	0.050	10	ug/L	20.0	0.135	91.2	70-130			
Thallium	17.8	0.050	1.0	ug/L	20.0	ND	89.2	70-130			
Uranium	12.9	0.020	1.0	pCi/l	13.4	0.106	95.5	70-130			
Zinc	216	0.50	50	ug/L	100	123	93.1	70-130			

Matrix Spike Dup (AF73110-MSD1) **Source: 17F0551-02** Prepared: 06/05/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Aluminum	599	8.0	50	ug/L	520	81.1	99.6	70-130	0.129	20	
Antimony	28.4	0.080	6.0	ug/L	20.0	7.99	102	70-130	1.10	20	
Arsenic	21.7	0.80	2.0	ug/L	20.0	1.55	101	70-130	0.641	20	
Barium	45.0	0.20	100	ug/L	20.0	26.1	94.5	70-130	1.86	20	J
Beryllium	21.0	0.080	1.0	ug/L	20.0	ND	105	70-130	0.699	20	
Cadmium	20.1	0.20	1.0	ug/L	20.0	ND	101	70-130	4.74	20	
Chromium	22.4	0.32	10	ug/L	20.0	1.42	105	70-130	4.62	20	
Copper	90.6	0.20	50	ug/L	20.0	73.4	86.0	70-130	2.22	20	
Lead	20.3	0.080	5.0	ug/L	20.0	0.520	98.8	70-130	0.364	20	
Manganese	44.7	0.20	20	ug/L	20.0	24.9	99.0	70-130	1.97	20	
Nickel	22.9	0.24	10	ug/L	20.0	2.08	104	70-130	1.44	20	
Selenium	23.7	0.80	5.0	ug/L	20.0	ND	118	70-130	0.684	20	
Silver	19.5	0.20	10	ug/L	20.0	ND	97.7	70-130	0.565	20	
Thallium	19.7	0.20	1.0	ug/L	20.0	ND	98.6	70-130	0.894	20	
Uranium	13.9	0.080	1.0	pCi/l	13.4	ND	104	70-130	0.520	20	
Zinc	176	2.0	50	ug/L	100	79.2	96.8	70-130	2.52	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AE74242 - General Preparation											
Duplicate (AE74242-DUP1)		**Source: 17E2539-01**			Prepared & Analyzed: 06/06/17						
Hydroxide	ND	1.0	5.0	mg/L		ND				5	U
Bicarbonate	19.5	1.0	5.0	mg/L		19.5			0.00	20	
Carbonate	ND	1.0	5.0	mg/L		ND				20	U
Total Alkalinity as CaCO3	16.0	1.0	5.0	mg/L		16.0			0.00	20	
Batch AE74270 - General Preparation											
Blank (AE74270-BLK1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L							U
LCS (AE74270-BS1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.181	0.030	0.050	mg/L	0.200		90.5	80-120			
LCS Dup (AE74270-BSD1)					Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.185	0.030	0.050	mg/L	0.200		92.6	80-120	2.22	20	
Duplicate (AE74270-DUP1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	ND	0.030	0.050	mg/L		ND				20	U
Matrix Spike (AE74270-MS1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.169	0.030	0.050	mg/L	0.200	ND	84.4	80-120			
Matrix Spike Dup (AE74270-MSD1)		**Source: 17E2539-01**			Prepared: 05/31/17 Analyzed: 06/07/17						
MBAS, calculated as LAS, mw 340	0.173	0.030	0.050	mg/L	0.200	ND	86.5	80-120	2.38	20	
Batch AF73080 - General Prep (DU)											
Duplicate (AF73080-DUP1)		**Source: 17F0174-01**			Prepared & Analyzed: 06/02/17						
Turbidity	0.100	0.050	0.10	NTU		0.0900			10.5	15	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73107 - General Preparation											
Blank (AF73107-BLK1)					Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L							U
LCS (AF73107-BS1)					Prepared & Analyzed: 06/05/17						
Perchlorate	24.6	0.90	4.0	ug/L	25.0		98.4	85-115			
Duplicate (AF73107-DUP1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	ND	0.90	4.0	ug/L		ND				15	U
Matrix Spike (AF73107-MS1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.1	0.90	4.0	ug/L	25.0	ND	100	70-130			
Matrix Spike Dup (AF73107-MSD1)		**Source: 17E2399-01**			Prepared & Analyzed: 06/05/17						
Perchlorate	25.0	0.90	4.0	ug/L	25.0	ND	99.9	70-130	0.304	15	
Batch AF73128 - General Preparation											
Duplicate (AF73128-DUP1)		**Source: 17F0185-01**			Prepared & Analyzed: 06/02/17						
Specific Conductance (EC)	1550	1.0	20	umhos/cm		1550			0.00	5	
pH	7.06	1.68	1.68	pH Units		7.05			0.142	20	T-14
Batch AF73148 - Metals Digest											
Blank (AF73148-BLK1)					Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	ND	1	5	mg/L							U
Duplicate (AF73148-DUP1)		**Source: 17F0338-05**			Prepared: 06/06/17 Analyzed: 06/08/17						
Hardness, Total	394	1	5	mg/L		385			2.45	20	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73199 - General Preparation											
Blank (AF73199-BLK1)					Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	ND	5.0	10	mg/L							U
Duplicate (AF73199-DUP1)		**Source: 17E2652-01**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	277	5.0	10	mg/L		255			8.27	15	
Duplicate (AF73199-DUP2)		**Source: 17F0169-04**			Prepared: 06/07/17 Analyzed: 06/14/17						
Total Dissolved Solids	348	5.0	10	mg/L		357			2.65	15	

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73140 - General Preparation											
Blank (AF73140-BLK1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L							U
LCS (AF73140-BS1)					Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.208	0.0020	0.10	mg/L	0.200		104	85-115			
Duplicate (AF73140-DUP1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	ND	0.0020	0.10	mg/L		ND				25	U
Matrix Spike (AF73140-MS1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.223	0.0020	0.10	mg/L	0.200	ND	111	85-115			
Matrix Spike (AF73140-MS2)		**Source: 17F0343-01**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.205	0.0020	0.10	mg/L	0.200	0.0210	92.2	85-115			
Matrix Spike Dup (AF73140-MSD1)		**Source: 17E2632-02**			Prepared & Analyzed: 06/06/17						
Cyanide (total)	0.220	0.0020	0.10	mg/L	0.200	ND	110	85-115	1.19	25	

Todd Groundwater	Project Manager: Amber Ritchie	
2490 Mariner Square Loop, Suite 215	Project: SCVWD IPR JD Morgan Park	Reported:
Alameda CA, 94501	Project Number: [none]	07/12/17 13:59

Anions by EPA Method 300.0 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73063 - General Preparation											
Blank (AF73063-BLK1)					Prepared & Analyzed: 06/02/17						
Fluoride	ND	0.070	0.10	mg/L							U
Nitrite as N	ND	0.050	0.40	mg/L							U
Chloride	ND	0.10	0.50	mg/L							U
Sulfate as SO4	ND	0.20	0.50	mg/L							U
Nitrate as N	ND	0.040	0.40	mg/L							U
LCS (AF73063-BS1)					Prepared & Analyzed: 06/02/17						
Nitrate as N	5.62	0.040	0.40	mg/L	5.56		101	90-110			
Sulfate as SO4	22.1	0.20	0.50	mg/L	22.2		99.3	90-110			
Nitrite as N	5.46	0.050	0.40	mg/L	5.56		98.2	90-110			
Fluoride	5.69	0.070	0.10	mg/L	5.56		102	90-110			
Chloride	11.0	0.10	0.50	mg/L	11.1		99.4	90-110			
Duplicate (AF73063-DUP1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Chloride	2.23	0.10	0.50	mg/L		2.27			1.51	20	
Nitrite as N	ND	0.050	0.40	mg/L		ND				20	U
Fluoride	ND	0.070	0.10	mg/L		ND				20	U
Sulfate as SO4	ND	0.20	0.50	mg/L		ND				20	U
Nitrate as N	0.113	0.040	0.40	mg/L		0.114			1.39	20	J
Matrix Spike (AF73063-MS1)		**Source: 17F0130-01**			Prepared & Analyzed: 06/02/17						
Nitrite as N	5.05	0.050	0.40	mg/L	5.56	ND	90.9	80-120			
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	105	80-120			
Nitrate as N	6.21	0.040	0.40	mg/L	5.56	0.114	110	80-120			
Fluoride	5.65	0.070	0.10	mg/L	5.56	ND	102	80-120			
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.5	80-120			
Matrix Spike (AF73063-MS2)		**Source: 17F0125-01**			Prepared & Analyzed: 06/02/17						
Nitrite as N	5.18	0.25	2.0	mg/L	5.56	ND	93.3	80-120			
Fluoride	5.33	0.35	0.50	mg/L	5.56	ND	96.0	80-120			
Chloride	54.2	0.50	2.5	mg/L	11.1	43.0	101	80-120			
Nitrate as N	5.76	0.20	2.0	mg/L	5.56	ND	104	80-120			
Sulfate as SO4	30.0	1.0	2.5	mg/L	22.2	10.2	89.2	80-120			

Anions by EPA Method 300.0 - Quality Control

Batch AF73063 - General Preparation

Matrix Spike Dup (AF73063-MSD1) **Source: 17F0130-01** Prepared & Analyzed: 06/02/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fluoride	5.64	0.070	0.10	mg/L	5.56	ND	101	80-120	0.158	20	
Chloride	13.9	0.10	0.50	mg/L	11.1	2.27	104	80-120	0.0561	20	
Sulfate as SO4	21.9	0.20	0.50	mg/L	22.2	ND	98.4	80-120	0.0711	20	
Nitrate as N	6.20	0.040	0.40	mg/L	5.56	0.114	110	80-120	0.121	20	
Nitrite as N	5.04	0.050	0.40	mg/L	5.56	ND	90.8	80-120	0.0881	20	

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Blank (AF73226-BLK1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	ND	0.30	0.50	ug/L							U
Carbon tetrachloride	ND	0.30	0.50	ug/L							U
Chlorobenzene	ND	0.50	0.50	ug/L							U
1,2-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,4-Dichlorobenzene	ND	0.50	0.50	ug/L							U
1,1-Dichloroethane	ND	0.40	0.50	ug/L							U
1,2-Dichloroethane	ND	0.50	0.50	ug/L							U
1,1-Dichloroethene	ND	0.30	0.50	ug/L							U
cis-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
trans-1,2-Dichloroethene	ND	0.40	0.50	ug/L							U
1,2-Dichloropropane	ND	0.50	0.50	ug/L							U
1,3-Dichloropropene (total)	ND	0.30	0.50	ug/L							U
Ethylbenzene	ND	0.50	0.50	ug/L							U
Methyl tert-butyl ether	ND	0.50	3.0	ug/L							U
Methylene chloride	ND	0.40	0.50	ug/L							U
Styrene	ND	0.50	0.50	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.50	0.50	ug/L							U
Tetrachloroethene	ND	0.50	0.50	ug/L							U
Toluene	ND	0.30	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.40	0.50	ug/L							U
1,1,1-Trichloroethane	ND	0.40	0.50	ug/L							U
1,1,2-Trichloroethane	ND	0.50	0.50	ug/L							U
Trichloroethene	ND	0.50	0.50	ug/L							U
Trichlorofluoromethane	ND	0.50	5.0	ug/L							U
Trichlorotrifluoroethane	ND	0.40	10	ug/L							U
Vinyl chloride	ND	0.50	0.50	ug/L							U
Xylenes (total)	ND	0.50	0.50	ug/L							U
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*21.6*			*ug/L*	*25.0*		*86.4*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.6*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS (AF73226-BS1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.29	0.30	0.50	ug/L	5.00		85.8	70-130			
Carbon tetrachloride	3.71	0.30	0.50	ug/L	5.00		74.2	70-130			
Chlorobenzene	4.66	0.50	0.50	ug/L	5.00		93.2	70-130			
1,2-Dichlorobenzene	4.67	0.50	0.50	ug/L	5.00		93.4	70-130			
1,4-Dichlorobenzene	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethane	4.16	0.40	0.50	ug/L	5.00		83.2	70-130			
1,2-Dichloroethane	4.48	0.50	0.50	ug/L	5.00		89.6	70-130			
1,1-Dichloroethene	3.62	0.30	0.50	ug/L	5.00		72.4	70-130			
cis-1,2-Dichloroethene	4.27	0.40	0.50	ug/L	5.00		85.4	70-130			
trans-1,2-Dichloroethene	3.93	0.40	0.50	ug/L	5.00		78.6	70-130			
1,2-Dichloropropane	4.56	0.50	0.50	ug/L	5.00		91.2	70-130			
Ethylbenzene	4.49	0.50	0.50	ug/L	5.00		89.8	70-130			
Methyl tert-butyl ether	3.93	0.50	3.0	ug/L	5.00		78.6	70-130			
Methylene chloride	3.97	0.40	0.50	ug/L	5.00		79.4	70-130			
Styrene	4.62	0.50	0.50	ug/L	5.00		92.4	70-130			
1,1,2,2-Tetrachloroethane	4.74	0.50	0.50	ug/L	5.00		94.8	70-130			
Tetrachloroethene	4.57	0.50	0.50	ug/L	5.00		91.4	70-130			
Toluene	4.48	0.30	0.50	ug/L	5.00		89.6	70-130			
1,2,4-Trichlorobenzene	4.77	0.40	0.50	ug/L	5.00		95.4	70-130			
1,1,1-Trichloroethane	4.01	0.40	0.50	ug/L	5.00		80.2	70-130			
1,1,2-Trichloroethane	4.70	0.50	0.50	ug/L	5.00		94.0	70-130			
Trichloroethene	4.36	0.50	0.50	ug/L	5.00		87.2	70-130			
Trichlorofluoromethane	4.24	0.50	5.0	ug/L	5.00		84.8	70-130			J
Trichlorotrifluoroethane	4.18	0.40	10	ug/L	5.00		83.6	70-130			J
Vinyl chloride	4.06	0.50	0.50	ug/L	5.00		81.2	70-130			
Xylenes (total)	13.6	0.50	0.50	ug/L	15.0		90.5	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*105*	*70-130*			
Surrogate: Dibromofluoromethane	*22.2*			*ug/L*	*25.0*		*88.9*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.4*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

LCS Dup (AF73226-BSD1) Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.55	0.30	0.50	ug/L	5.00		91.0	70-130	5.88	30	
Carbon tetrachloride	4.16	0.30	0.50	ug/L	5.00		83.2	70-130	11.4	30	
Chlorobenzene	4.82	0.50	0.50	ug/L	5.00		96.4	70-130	3.38	30	
1,2-Dichlorobenzene	4.85	0.50	0.50	ug/L	5.00		97.0	70-130	3.78	30	
1,4-Dichlorobenzene	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	3.51	30	
1,1-Dichloroethane	4.57	0.40	0.50	ug/L	5.00		91.4	70-130	9.39	30	
1,2-Dichloroethane	4.52	0.50	0.50	ug/L	5.00		90.4	70-130	0.889	30	
1,1-Dichloroethene	4.04	0.30	0.50	ug/L	5.00		80.8	70-130	11.0	30	
cis-1,2-Dichloroethene	4.66	0.40	0.50	ug/L	5.00		93.2	70-130	8.73	30	
trans-1,2-Dichloroethene	4.35	0.40	0.50	ug/L	5.00		87.0	70-130	10.1	30	
1,2-Dichloropropane	4.57	0.50	0.50	ug/L	5.00		91.4	70-130	0.219	30	
Ethylbenzene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	5.21	30	
Methyl tert-butyl ether	4.04	0.50	3.0	ug/L	5.00		80.8	70-130	2.76	30	
Methylene chloride	4.28	0.40	0.50	ug/L	5.00		85.6	70-130	7.52	30	
Styrene	4.73	0.50	0.50	ug/L	5.00		94.6	70-130	2.35	30	
1,1,2,2-Tetrachloroethane	4.86	0.50	0.50	ug/L	5.00		97.2	70-130	2.50	30	
Tetrachloroethene	4.70	0.50	0.50	ug/L	5.00		94.0	70-130	2.80	30	
Toluene	4.67	0.30	0.50	ug/L	5.00		93.4	70-130	4.15	30	
1,2,4-Trichlorobenzene	4.92	0.40	0.50	ug/L	5.00		98.4	70-130	3.10	30	
1,1,1-Trichloroethane	4.44	0.40	0.50	ug/L	5.00		88.8	70-130	10.2	30	
1,1,2-Trichloroethane	4.67	0.50	0.50	ug/L	5.00		93.4	70-130	0.640	30	
Trichloroethene	4.61	0.50	0.50	ug/L	5.00		92.2	70-130	5.57	30	
Trichlorofluoromethane	4.66	0.50	5.0	ug/L	5.00		93.2	70-130	9.44	30	J
Trichlorotrifluoroethane	4.68	0.40	10	ug/L	5.00		93.6	70-130	11.3	30	J
Vinyl chloride	4.64	0.50	0.50	ug/L	5.00		92.8	70-130	13.3	30	
Xylenes (total)	14.2	0.50	0.50	ug/L	15.0		94.7	70-130	4.53	30	
Surrogate: Bromofluorobenzene	*26.1*			*ug/L*	*25.0*		*104*	*70-130*			
Surrogate: Dibromofluoromethane	*22.7*			*ug/L*	*25.0*		*90.8*	*70-130*			
Surrogate: Toluene-d8	*24.0*			*ug/L*	*25.0*		*96.0*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS1) **Source: 17F0147-01** Prepared: 06/06/17 Analyzed: 06/07/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	5.00	0.30	0.50	ug/L	5.00	ND	100	70-130			
Carbon tetrachloride	4.56	0.30	0.50	ug/L	5.00	ND	91.2	70-130			
Chlorobenzene	5.09	0.50	0.50	ug/L	5.00	ND	102	70-130			
1,2-Dichlorobenzene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
1,4-Dichlorobenzene	4.72	0.50	0.50	ug/L	5.00	ND	94.4	70-130			
1,1-Dichloroethane	5.31	0.40	0.50	ug/L	5.00	ND	106	70-130			
1,2-Dichloroethane	4.76	0.50	0.50	ug/L	5.00	ND	95.2	70-130			
1,1-Dichloroethene	5.66	0.30	0.50	ug/L	5.00	0.390	105	70-130			
cis-1,2-Dichloroethene	5.36	0.40	0.50	ug/L	5.00	ND	107	70-130			
trans-1,2-Dichloroethene	5.21	0.40	0.50	ug/L	5.00	ND	104	70-130			
1,2-Dichloropropane	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
Ethylbenzene	5.05	0.50	0.50	ug/L	5.00	ND	101	70-130			
Methyl tert-butyl ether	4.14	0.50	3.0	ug/L	5.00	ND	82.8	70-130			
Methylene chloride	4.61	0.40	0.50	ug/L	5.00	ND	92.2	70-130			
Styrene	4.83	0.50	0.50	ug/L	5.00	ND	96.6	70-130			
1,1,2,2-Tetrachloroethane	4.85	0.50	0.50	ug/L	5.00	ND	97.0	70-130			
Tetrachloroethene	5.24	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	5.21	0.30	0.50	ug/L	5.00	ND	104	70-130			
1,2,4-Trichlorobenzene	4.65	0.40	0.50	ug/L	5.00	ND	93.0	70-130			
1,1,1-Trichloroethane	6.12	0.40	0.50	ug/L	5.00	0.940	104	70-130			
1,1,2-Trichloroethane	4.93	0.50	0.50	ug/L	5.00	ND	98.6	70-130			
Trichloroethene	5.11	0.50	0.50	ug/L	5.00	ND	102	70-130			
Trichlorofluoromethane	5.95	0.50	5.0	ug/L	5.00	ND	119	70-130			
Trichlorotrifluoroethane	6.07	0.40	10	ug/L	5.00	ND	121	70-130			J
Vinyl chloride	5.70	0.50	0.50	ug/L	5.00	ND	114	70-130			
Xylenes (total)	15.2	0.50	0.50	ug/L	15.0	ND	101	70-130			
Surrogate: Bromofluorobenzene	*25.2*			*ug/L*	*25.0*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*23.1*			*ug/L*	*25.0*		*92.5*	*70-130*			
Surrogate: Toluene-d8	*24.4*			*ug/L*	*25.0*		*97.7*	*70-130*			

Volatile Organic Compounds by EPA Method 524.2 - Quality Control

Batch AF73226 - VOAs in Water GCMS

Matrix Spike (AF73226-MS2) **Source: 17F0149-01** Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Benzene	4.86	0.30	0.50	ug/L	5.00	ND	97.2	70-130			
Carbon tetrachloride	4.36	0.30	0.50	ug/L	5.00	ND	87.2	70-130			
Chlorobenzene	4.99	0.50	0.50	ug/L	5.00	ND	99.8	70-130			
1,2-Dichlorobenzene	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
1,4-Dichlorobenzene	4.60	0.50	0.50	ug/L	5.00	ND	92.0	70-130			
1,1-Dichloroethane	5.26	0.40	0.50	ug/L	5.00	ND	105	70-130			
1,2-Dichloroethane	4.70	0.50	0.50	ug/L	5.00	ND	94.0	70-130			
1,1-Dichloroethene	9.60	0.30	0.50	ug/L	5.00	4.50	102	70-130			
cis-1,2-Dichloroethene	5.47	0.40	0.50	ug/L	5.00	ND	109	70-130			
trans-1,2-Dichloroethene	4.98	0.40	0.50	ug/L	5.00	ND	99.6	70-130			
1,2-Dichloropropane	4.77	0.50	0.50	ug/L	5.00	ND	95.4	70-130			
Ethylbenzene	4.94	0.50	0.50	ug/L	5.00	ND	98.8	70-130			
Methyl tert-butyl ether	3.99	0.50	3.0	ug/L	5.00	ND	79.8	70-130			
Methylene chloride	4.34	0.40	0.50	ug/L	5.00	ND	86.8	70-130			
Styrene	4.69	0.50	0.50	ug/L	5.00	ND	93.8	70-130			
1,1,2,2-Tetrachloroethane	4.78	0.50	0.50	ug/L	5.00	ND	95.6	70-130			
Tetrachloroethene	5.26	0.50	0.50	ug/L	5.00	ND	105	70-130			
Toluene	4.99	0.30	0.50	ug/L	5.00	ND	99.8	70-130			
1,2,4-Trichlorobenzene	4.67	0.40	0.50	ug/L	5.00	ND	93.4	70-130			
1,1,1-Trichloroethane	9.00	0.40	0.50	ug/L	5.00	3.91	102	70-130			
1,1,2-Trichloroethane	4.79	0.50	0.50	ug/L	5.00	ND	95.8	70-130			
Trichloroethene	5.00	0.50	0.50	ug/L	5.00	ND	100	70-130			
Trichlorofluoromethane	5.70	0.50	5.0	ug/L	5.00	ND	114	70-130			
Trichlorotrifluoroethane	6.01	0.40	10	ug/L	5.00	ND	120	70-130			J
Vinyl chloride	5.75	0.50	0.50	ug/L	5.00	ND	115	70-130			
Xylenes (total)	15.0	0.50	0.50	ug/L	15.0	ND	99.7	70-130			
Surrogate: Bromofluorobenzene	*26.4*			*ug/L*	*25.0*		*106*	*70-130*			
Surrogate: Dibromofluoromethane	*24.0*			*ug/L*	*25.0*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*25.4*			*ug/L*	*25.0*		*102*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73122 - SVOAs in Water GC

Blank (AF73122-BLK1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	ND	0.030	0.10	ug/L							U
HCH-gamma (Lindane)	ND	0.010	0.20	ug/L							U
Heptachlor	ND	0.010	0.010	ug/L							U
Heptachlor epoxide	ND	0.010	0.010	ug/L							U
Hexachlorobenzene	ND	0.010	0.50	ug/L							U
Hexachlorocyclopentadiene	ND	0.040	1.0	ug/L							U
Methoxychlor	ND	0.020	10	ug/L							U
PCB-1016	ND	0.030	0.50	ug/L							U
PCB-1221	ND	0.030	0.50	ug/L							U
PCB-1232	ND	0.030	0.50	ug/L							U
PCB-1242	ND	0.030	0.50	ug/L							U
PCB-1248	ND	0.030	0.50	ug/L							U
PCB-1254	ND	0.030	0.50	ug/L							U
PCB-1260	ND	0.030	0.50	ug/L							U
Total PCBs	ND	0.30	0.50	ug/L							U
Toxaphene	ND	0.40	1.0	ug/L							U
Chlordane (tech)	ND	0.030	0.10	ug/L							U
Surrogate: Dibutylchlorendate	*0.704*			*ug/L*	*0.978*		*72.0*	*70-130*			

LCS (AF73122-BS1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.250	0.030	0.10	ug/L	0.280		89.4	70-130			
HCH-gamma (Lindane)	0.221	0.010	0.20	ug/L	0.280		78.8	70-130			
Heptachlor	0.217	0.010	0.010	ug/L	0.280		77.5	70-130			
Heptachlor epoxide	0.231	0.010	0.010	ug/L	0.280		82.5	70-130			
Hexachlorocyclopentadiene	0.269	0.040	1.0	ug/L	0.560		48.1	15-90			J
Hexachlorobenzene	0.222	0.010	0.50	ug/L	0.280		79.3	70-130			J
Methoxychlor	0.239	0.020	10	ug/L	0.280		85.5	70-130			J
Surrogate: Dibutylchlorendate	*0.828*			*ug/L*	*0.978*		*84.6*	*70-130*			

Chlorinated Pesticides and PCBs by EPA Method 508 - Quality Control

Batch AF73122 - SVOAs in Water GC

LCS Dup (AF73122-BSD1) Prepared: 06/05/17 Analyzed: 06/10/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Endrin	0.269	0.030	0.10	ug/L	0.280		96.1	70-130	7.24	25	
HCH-gamma (Lindane)	0.242	0.010	0.20	ug/L	0.280		86.5	70-130	9.25	25	
Heptachlor	0.234	0.010	0.010	ug/L	0.280		83.5	70-130	7.49	25	
Heptachlor epoxide	0.249	0.010	0.010	ug/L	0.280		89.0	70-130	7.65	25	
Hexachlorobenzene	0.207	0.010	0.50	ug/L	0.280		74.1	70-130	6.86	25	J
Hexachlorocyclopentadiene	0.305	0.040	1.0	ug/L	0.560		54.4	15-90	12.4	50	J
Methoxychlor	0.258	0.020	10	ug/L	0.280		92.2	70-130	7.61	25	J
Surrogate: Dibutylchlorendate	*0.866*			*ug/L*	*0.978*		*88.6*	*70-130*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Batch AF73181 - SVOAs in Water GC

Blank (AF73181-BLK1) Prepared: 06/06/17 Analyzed: 06/08/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	ND	0.50	1.0	ug/L							U
Atrazine	ND	0.30	0.50	ug/L							U
Molinate	ND	0.20	2.0	ug/L							U
Simazine	ND	0.30	1.0	ug/L							U
Thiobencarb	ND	0.20	1.0	ug/L							U
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.61*			*ug/L*	*2.00*		*80.5*	*70-130*			

LCS (AF73181-BS1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.67	0.50	1.0	ug/L	2.80		95.3	70-130			
Atrazine	2.22	0.30	0.50	ug/L	2.80		79.4	70-130			
Molinate	2.02	0.20	2.0	ug/L	2.80		72.2	70-130			
Simazine	2.22	0.30	1.0	ug/L	2.80		79.4	70-130			
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.63*			*ug/L*	*2.00*		*81.4*	*70-130*			

LCS Dup (AF73181-BSD1) Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.16	0.50	1.0	ug/L	2.80		77.0	70-130	21.3	30	
Atrazine	2.15	0.30	0.50	ug/L	2.80		76.8	70-130	3.30	30	
Molinate	2.09	0.20	2.0	ug/L	2.80		74.8	70-130	3.42	30	
Simazine	2.23	0.30	1.0	ug/L	2.80		79.5	70-130	0.126	30	
Thiobencarb	2.17	0.20	1.0	ug/L	2.80		77.5	70-130	0.00691	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.58*			*ug/L*	*2.00*		*79.2*	*70-130*			

Matrix Spike (AF73181-MS1) **Source: 17F0087-01** Prepared: 06/06/17 Analyzed: 06/09/17

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Alachlor	2.34	0.50	1.0	ug/L	2.80	ND	83.6	65-135			
Atrazine	2.42	0.30	0.50	ug/L	2.80	ND	86.3	65-135			
Molinate	2.15	0.20	2.0	ug/L	2.80	ND	77.0	65-135			
Simazine	2.48	0.30	1.0	ug/L	2.80	ND	88.5	65-135			
Thiobencarb	2.26	0.20	1.0	ug/L	2.80	ND	80.7	65-135			
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.77*			*ug/L*	*2.00*		*88.6*	*70-130*			

Nitrogen- and Phosphorus- Pesticides by EPA Method 507 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73181 - SVOAs in Water GC											
Matrix Spike Dup (AF73181-MSD1)		**Source: 17F0087-01**			Prepared: 06/06/17 Analyzed: 06/09/17						
Alachlor	2.09	0.50	1.0	ug/L	2.80	ND	74.5	65-135	11.5	30	
Atrazine	2.17	0.30	0.50	ug/L	2.80	ND	77.6	65-135	10.7	30	
Molinate	2.00	0.20	2.0	ug/L	2.80	ND	71.3	65-135	7.69	30	
Simazine	2.19	0.30	1.0	ug/L	2.80	ND	78.4	65-135	12.1	30	
Thiobencarb	2.15	0.20	1.0	ug/L	2.80	ND	76.7	65-135	5.19	30	
Surrogate: 1,3-Dimethyl-2-nitrobenzene	*1.48*			*ug/L*	*2.00*		*74.0*	*70-130*			

Organic Analytes by EPA Method 504.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73284 - EPA 504.1											
Blank (AF73284-BLK1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	ND	0.0040	0.010	ug/L							U
1,2-Dibromoethane (EDB)	ND	0.0050	0.020	ug/L							U
LCS (AF73284-BS1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.321	0.0040	0.010	ug/L	0.250		129	70-130			
1,2-Dibromoethane (EDB)	0.280	0.0050	0.020	ug/L	0.250		112	70-130			
LCS Dup (AF73284-BSD1)					Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.213	0.0040	0.010	ug/L	0.250		85.3	70-130	40.4	25	QL-04
1,2-Dibromoethane (EDB)	0.205	0.0050	0.020	ug/L	0.250		81.8	70-130	31.0	25	QL-04
Matrix Spike (AF73284-MS1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.240	0.0040	0.010	ug/L	0.250	ND	96.2	70-130			
1,2-Dibromoethane (EDB)	0.226	0.0050	0.020	ug/L	0.250	ND	90.5	70-130			
Matrix Spike Dup (AF73284-MSD1)		**Source: 17F0087-01**			Prepared & Analyzed: 06/12/17						
1,2-Dibromo-3-chloropropane	0.253	0.0040	0.010	ug/L	0.250	ND	101	70-130	4.99	25	
1,2-Dibromoethane (EDB)	0.235	0.0050	0.020	ug/L	0.250	ND	93.9	70-130	3.78	25	

Chlorinated Acids by EPA Method 515.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73233 - Herbicides											
Blank (AF73233-BLK1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	ND	0.40	2.0	ug/L							U
2,4-D	ND	0.80	10	ug/L							U
Dalapon	ND	6.0	10	ug/L							U
Dinoseb	ND	0.80	2.0	ug/L							U
Pentachlorophenol	ND	0.20	0.20	ug/L							U
Picloram	ND	0.50	1.0	ug/L							U
2,4,5-TP (Silvex)	ND	0.50	1.0	ug/L							U
Surrogate: DCAA	*13.5*			*ug/L*	*15.0*		*89.8*	*70-130*			
LCS (AF73233-BS1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.04	0.40	2.0	ug/L	1.92		107	70-130			
2,4-D	2.18	0.80	10	ug/L	1.92		113	48-124			J
Dalapon	12.4	6.0	10	ug/L	12.5		99.6	40-112			
Dinoseb	4.85	0.80	2.0	ug/L	6.42		75.5	20-105			
Pentachlorophenol	1.08	0.20	0.20	ug/L	0.960		113	70-130			
Picloram	1.14	0.50	1.0	ug/L	0.960		119	70-130			
2,4,5-TP (Silvex)	0.927	0.50	1.0	ug/L	0.960		96.6	70-130			J
Surrogate: DCAA	*12.7*			*ug/L*	*15.0*		*84.6*	*70-130*			
LCS Dup (AF73233-BSD1)					Prepared: 06/08/17 Analyzed: 06/14/17						
Bentazon	2.00	0.40	2.0	ug/L	1.92		104	70-130	2.40	50	
2,4-D	2.20	0.80	10	ug/L	1.92		114	48-124	1.06	50	J
Dalapon	13.0	6.0	10	ug/L	12.5		104	40-112	4.70	50	
Dinoseb	5.56	0.80	2.0	ug/L	6.42		86.6	20-105	13.7	50	
Pentachlorophenol	1.07	0.20	0.20	ug/L	0.960		111	70-130	1.72	50	
Picloram	1.07	0.50	1.0	ug/L	0.960		111	70-130	6.59	50	
2,4,5-TP (Silvex)	1.04	0.50	1.0	ug/L	0.960		108	70-130	11.0	50	
Surrogate: DCAA	*14.8*			*ug/L*	*15.0*		*98.4*	*70-130*			

Chlorinated Acids by EPA Method 515.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73233 - Herbicides											
Matrix Spike (AF73233-MS1)		**Source: 17F0087-01**			Prepared: 06/08/17 Analyzed: 06/15/17						
Bentazon	2.05	0.40	2.0	ug/L	1.92	ND	107	70-130			
2,4-D	2.25	0.80	10	ug/L	1.92	ND	117	48-124			J
Dalapon	12.3	6.0	10	ug/L	12.5	ND	98.8	40-112			
Dinoseb	6.04	0.80	2.0	ug/L	6.42	ND	94.1	20-105			
Pentachlorophenol	1.03	0.20	0.20	ug/L	0.960	ND	107	70-130			
Picloram	0.949	0.50	1.0	ug/L	0.960	ND	98.9	70-130			J
2,4,5-TP (Silvex)	1.07	0.50	1.0	ug/L	0.960	ND	111	70-130			
Surrogate: DCAA	*15.6*			*ug/L*	*15.0*		*104*	*70-130*			
Matrix Spike Dup (AF73233-MSD1)		**Source: 17F0087-01**			Prepared: 06/08/17 Analyzed: 06/15/17						
Bentazon	2.07	0.40	2.0	ug/L	1.92	ND	108	70-130	0.779	50	
2,4-D	2.06	0.80	10	ug/L	1.92	ND	108	48-124	8.44	50	J
Dalapon	10.7	6.0	10	ug/L	12.5	ND	85.8	40-112	14.2	50	
Dinoseb	5.26	0.80	2.0	ug/L	6.42	ND	82.0	20-105	13.8	50	
Pentachlorophenol	0.914	0.20	0.20	ug/L	0.960	ND	95.3	70-130	12.0	50	
Picloram	1.01	0.50	1.0	ug/L	0.960	ND	106	70-130	6.54	50	
2,4,5-TP (Silvex)	0.958	0.50	1.0	ug/L	0.960	ND	99.8	70-130	10.8	50	J
Surrogate: DCAA	*14.4*			*ug/L*	*15.0*		*95.9*	*70-130*			

Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda CA, 94501

Project Manager: Amber Ritchie
Project: SCVWD IPR JD Morgan Park
Project Number: [none]

Reported:
07/12/17 13:59

Carbamates by EPA Method 531.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73245 - HPLC											
Blank (AF73245-BLK1)					Prepared & Analyzed: 06/12/17						
Carbofuran	ND	0.90	5.0	ug/L							U
Oxamyl	ND	1.0	20	ug/L							U
LCS (AF73245-BS1)					Prepared & Analyzed: 06/12/17						
Carbofuran	19.0	0.90	5.0	ug/L	20.0		94.9	80-120			
Oxamyl	21.2	1.0	20	ug/L	20.0		106	80-120			
LCS Dup (AF73245-BSD1)					Prepared & Analyzed: 06/12/17						
Carbofuran	22.2	0.90	5.0	ug/L	20.0		111	80-120	15.6	20	
Oxamyl	23.7	1.0	20	ug/L	20.0		119	80-120	11.1	20	
Matrix Spike (AF73245-MS1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	20.9	0.90	5.0	ug/L	20.0	ND	105	65-135			
Oxamyl	24.3	1.0	20	ug/L	20.0	ND	122	65-135			
Matrix Spike Dup (AF73245-MSD1)		**Source: 17F0945-01**			Prepared: 06/12/17 Analyzed: 06/13/17						
Carbofuran	24.1	0.90	5.0	ug/L	20.0	ND	120	65-135	14.0	20	
Oxamyl	24.5	1.0	20	ug/L	20.0	ND	122	65-135	0.591	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Endothall by EPA Method 548.1 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73184 - EPA 548.1											
Blank (AF73184-BLK1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	ND	20	45	ug/L							U
LCS (AF73184-BS1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	216	20	45	ug/L	200		108	80-120			
LCS Dup (AF73184-BSD1)					Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	208	20	45	ug/L	200		104	80-120	3.81	30	
Matrix Spike (AF73184-MS1)		**Source: 17F0087-01**			Prepared: 06/07/17 Analyzed: 06/08/17						
Endothall	31.0	20	45	ug/L	200	ND	15.5	80-120			QM-07, J

Glyphosate by EPA Method 547 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73108 - HPLC											
Blank (AF73108-BLK1)					Prepared & Analyzed: 06/05/17						
Glyphosate	ND	3.0	25	ug/L							U
LCS (AF73108-BS1)					Prepared & Analyzed: 06/05/17						
Glyphosate	107	3.0	25	ug/L	120		89.1	70-130			
LCS Dup (AF73108-BSD1)					Prepared & Analyzed: 06/05/17						
Glyphosate	105	3.0	25	ug/L	120		87.7	70-130	1.54	30	
Matrix Spike (AF73108-MS1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	96.7	3.0	25	ug/L	120	ND	80.6	70-130			
Matrix Spike Dup (AF73108-MSD1)		**Source: 17F0147-01**			Prepared & Analyzed: 06/05/17						
Glyphosate	106	3.0	25	ug/L	120	ND	88.1	70-130	8.89	30	

Diquat by EPA Method 549.2 - Quality Control

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch AF73099 - HPLC											
Blank (AF73099-BLK1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	ND	2.0	4.0	ug/L							U
LCS (AF73099-BS1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	16.4	2.0	4.0	ug/L	20.0		82.2	70-130			
LCS Dup (AF73099-BSD1)					Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	17.6	2.0	4.0	ug/L	20.0		88.0	70-130	6.84	25	
Matrix Spike (AF73099-MS1)		**Source: 17F0087-01**			Prepared: 06/05/17 Analyzed: 06/07/17						
Diquat	18.9	2.0	4.0	ug/L	20.0	ND	94.6	70-130			

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration, detected but not quantified (DNQ).
QL-04	The LCS/LCSD RPD for this analyte was outside of established control limits. Batch accepted based on acceptable recovery for both LCS/LCSD.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
T-14	Residual chlorine, dissolved oxygen, and pH must be analyzed in the field to meet the EPA specified 15 minute hold time.
U	Analyte included in analysis, but not detected at or above MDL.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
REC	Recovery
RPD	Relative Percent Difference

Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Suite 1
El Dorado Hills, CA 95762

June 14, 2017 Ceres ID: 11452

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482

The following report contains the results for the one drinking water sample received on June 7, 2017. This sample was analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under Alpha Analytical Laboratories' project # 17F0151.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date &Time
11452-001	LGRS-05: Rotary Deep 17F0151-01	6/7/2017	6/1/2017 10:05

Section II: Data Summary

EPA Method 1613B

Quality Assurance Sample **Method Blank**		**Date Received:** NA
	QC Batch #: 1610	**Date Extracted:** 6/12/2017
	Matrix: Drinking Water	**ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0151	**Sample Size:** 1.000 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.44	1.35	5.00		13C-2378-TCDD	103	31-137	
					CRS			
					37Cl4-2378-TCDD	91.3	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

EPA Method 1613B

Quality Assurance Sample **Ongoing Precision and Recovery**	**QC Batch #:** 1610 **Matrix:** Drinking Water	**Date Received:** NA **Date Extracted:** 6/12/2017 **ZB-5MS Analysis:** 6/13/2017
Project ID: 17F0151	**Sample Size:** 1.000 L	

Analyte	**Conc. (ng/mL)**	**Limits** (a)	**Labeled Standards**	**% Rec.**	**Limits** (a)
2,3,7,8-TCDD	9.36	7.3-14.6	13C-2378-TCDD	104	25-141
			CRS		
			37Cl4-2378-TCDD	96.2	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH

Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: LGRS-05: Rotary Deep 17F0151-01

Project ID:	17F0151	**Ceres Sample ID:**	11452-001	**Date Received:**	6/7/2017
		QC Batch #:	1610	**Date Extracted:**	6/12/2017
Date Collected:	6/1/2017	**Matrix:**	Drinking Water	**ZB-5MS Analysis:**	6/13/2017
Time Collected:	10:05 AM	**Sample Size:**	1.012 L		

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.47	1.35	4.94		13C-2378-TCDD	104	31-137	
					CRS			
					37Cl4-2378-TCDD	102	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH **Reviewed by: BS**

Section VI: Sample Tracking

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0151

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc.	Ceres Labs
208 Mason St.	4919 Windplay Dr.
Ukiah, CA 95482	El Dorado Hills, CA 95762
Phone: (707)468-0401	Phone :(916) 932-5011
Fax: (707)468-5267	Fax: (916) 932-5017
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	**Due**	**Expires**	**Comments**
17F0151-01 LGRS-05: Rotary Deep [Water] Sampled 06/01/17 10:05			
Dioxin 2378 TCDD DW 1613	06/16/17 12:00	06/01/18 10:05	

Containers Supplied:

1L Amber- Unpres. (AB) 1L Amber- Unpres. (AC)

☐ *Report to State*

System Name: ______ **Employed by:** ______

User ID: ______ **Sampler:** ______

System Number: ______

+QC

	6-5-17		6/7/17 09:51
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Sample Receipt Check List

Ceres ID: 11452	Date/Time: 6/7/17 09:51
Client Project ID: 17F0151	Received Temp: 3.7 °C Acceptable: [✓ Y] / N
Chain of Custody Relinquished by signed?	[✓ Y] / N
Custody Seals? Present?	Y / N
Intact?	Y / N
NA:	[✓ NA]
Unlabeled / Illegible Samples	Y / [✓ N]
Proper Containers:	[✓ Y] / N
Preservation Acceptable (Chemical or Temperature)?	[✓ Y] / N
Drinking Water, Sodium Thiosulfate present?	Y / [✓ N] / NA
Residual Cl?	Y / [✓ N]
Aqueous sample pH: 7	

List COC discrepancies:

6/7/17

List Damaged Samples:

6/7/17

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

eurofins Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

AT-1807

Laboratory Report

for

Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482
Attention: David S. Pingatore
Fax: 707-468-5267

Date of Issue
06/21/2017
EUROFINS EATON ANALYTICAL, INC.

ORELAP 4034

M5B: Magnolia Busse

Project Manager

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Mississippi**	Certified
Arizona	AZ0778	**Montana**	Cert 0035
Arkansas	Certified	**Nebraska**	Certified
California-Monrovia-ELAP	2813	**Nevada**	CA00006-2016
California-Colton- ELAP	2812	**New Hampshire ***	2959
California-Folsom- ELAP	2820	**New Jersey ***	CA 008
California-Fresno- ELAP	2966	**New Mexico**	Certified
Colorado	Certified	**New York ***	11320
Connecticut	PH-0107	**North Carolina**	06701
Delaware	CA 006	**North Dakota**	R-009
Florida *	E871024	**Oregon (Primary AB) ***	**ORELAP 4034**
Georgia	947	**Pennsylvania ***	68-565
Guam	16-003r	**Puerto Rico**	Certified
Hawaii	Certified	**Rhode Island**	LAO00326
Idaho	Certified	**South Carolina**	87016
Illinois *	200033	**South Dakota**	Certified
Indiana	C-CA-01	**Tennessee**	TN02839
Kansas *	E-10268	**Texas ***	T104704230-15-9
Kentucky	90107	**Utah ***	CA000062016-10
Louisiana *	LA16003	**Vermont**	VT0114
Maine	CA0006	**Virginia ***	460260
Maryland	224	**Washington**	C838
Commonwealth of Northern Marianas Is.	MP0004	**Wyoming**	Certified
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264

* NELAP/TNI Recognized Accreditation Bodies

ISO 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ANAB.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
Bicarbonate Alkalinity as HCO3	SM 2320B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cryptosporidium	EPA 1623	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Giardia	EPA 1623	x		x
Glyphosate	EPA 547	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	CDC Legionella	x		x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
NDMA	EPA 521	x		x
NDMA	TQ In house method based on EPA 521 (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphate	SM 4500P E			x
Ortho Phosphorous	SM 4500P E	x		
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Semi-VOC	EPA 625		x	x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x		x
VOC	EPA 624		x	x
VOC	EPA SW 846 8260	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x

Version 002 Issued: 09/21/2016

Acknowledgement of Samples Received

Addr:	**Alpha Analytical Laboratories, Inc.** 208 Mason Street Ukiah, CA 95482	Client ID:	ALPHA-UKIAH
		Folder #:	664415
		Project:	DRINKING
		Sample Group:	ORGANICS - EPA 500's
Attn:	David S. Pingatore	Project Manager:	Magnolia Busse
Phone:	925 828 6226	Phone:	916-605-3387
		PO #:	17F0151

The following samples were received from you on **June 06, 2017** at **09:53**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, Inc..

Sample #	Sample ID	Sample Date
201706060519	LGRS-05: Rotary Deep Variable ID: 17F0151-01 @525_FGL_SHORT	06/01/2017 1005

Test Description

@525_FGL_SHORT -- Semivolatiles by GCMS

9/1

664415

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0151

SENDING LABORATORY:

Alpha Analytical Laboratories, Inc.
208 Mason St.
Ukiah, CA 95482
Phone: (707)468-0401
Fax: (707)468-5267
Project Manager: David S. Pingatore

RECEIVING LABORATORY:

Eurofins Eaton Analytical Inc.
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016
Phone :626-568-6463
Fax: 626-568-6324
Terms: Net 30

Analysis	**Due**	**Expires**	**Comments**
17F0151-01 LGRS-05: Rotary Deep [Water] Sampled 06/01/17 10:05			
525.2 DDW SVOC Reg3	06/16/17 12:00	06/15/17 10:05	

Containers Supplied:

1L Amber-HCl (U) 1L Amber-HCl (V)

☐ *Report to State*

System Name:

User ID:

System Number:

Employed by:

Sampler:

+QC

Released By	6-5-17 Date	Received By 4UDI	6/6/17 9:53 Date
	Date	Received By	Date

Page 1 of 1

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

The Comments Report may be blank if there are no comments for this report.

Laboratory Hits

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL

SUMMARY OF POSITIVE DATA ONLY

Alpha Analytical Laboratories, Inc.
David S. Pingatore
208 Mason Street
Ukiah, CA 95482

Samples Received on:
06/06/2017 09:53

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
LGRS-05: Rotary Deep (201706060519)						**Sampled on 06/01/2017 1005**			
	Variable ID: 17F0151-01								
		EPA 525.2 - Semivolatiles by GCMS							
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	96	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Acenaphthene-d10	82	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Chrysene-d12	93	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Perylene-d12	92	%		1
06/13/17	06/15/17 18:07	1002467	1003398	(EPA 525.2)	Phenanthrene-d10	86	%		1

Rounding on totals after summation.
(c) - indicates calculated results

Semivolatiles by GCMS

Prep Batch: 1002467 Analytical Batch: 1003398 **Analysis Date: 06/15/2017**

201706060519 LGRS-05: Rotary Deep Analyzed by: JWC

Semivolatiles by GCMS by EPA 525.2

Prep Batch: 1002467 Analytical Batch: 1003398 **Analysis Date: 06/15/2017**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			91.6	%	92	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			90.4	%	90	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			96.8	%	97	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			95.2	%	95	(70-130)		
MS_201706010849	1,3-Dimethyl-2-nitrobenzene (S)			94.0	%	94	(70-130)		
LCS1	Acenaphthene-d10 (I)			87.5	%	88	(50-150)		
LCS2	Acenaphthene-d10 (I)			97.0	%	97	(50-150)		
MBLK	Acenaphthene-d10 (I)			92.9	%	93	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			76.8	%	77	(50-150)		
MS_201706010849	Acenaphthene-d10 (I)			88.2	%	88	(50-150)		
LCS1	Benzo(a)pyrene		2	2.09	ug/L	104	(70-130)		
LCS2	Benzo(a)pyrene		2	1.95	ug/L	98	(70-130)	20	6.9
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0160	ug/L	80	(50-150)		
MS_201706010849	Benzo(a)pyrene	ND	2	1.94	ug/L	97	(70-130)		
LCS1	Chrysene-d12 (I)			86.4	%	86	(50-150)		
LCS2	Chrysene-d12 (I)			101	%	101	(50-150)		
MBLK	Chrysene-d12 (I)			94.7	%	95	(50-150)		
MRL_CHK	Chrysene-d12 (I)			76.9	%	77	(50-150)		
MS_201706010849	Chrysene-d12 (I)			95.2	%	95	(50-150)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.38	ug/L	119	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.49	ug/L	125	(70-130)	20	4.5
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.317	ug/L	106	(50-150)		
MS_201706010849	Di-(2-Ethylhexyl)adipate	ND	2	2.38	ug/L	119	(70-130)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.16	ug/L	108	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.37	ug/L	119	(70-130)	20	9.3
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.614	ug/L	102	(50-150)		
MS_201706010849	Di(2-Ethylhexyl)phthalate	ND	2	2.22	ug/L	111	(70-130)		
LCS1	Perylene-d12 (S)			93.9	%	94	(70-130)		
LCS2	Perylene-d12 (S)			86.0	%	86	(70-130)		
MBLK	Perylene-d12 (S)			82.6	%	83	(70-130)		
MRL_CHK	Perylene-d12 (S)			88.6	%	89	(70-130)		
MS_201706010849	Perylene-d12 (S)			85.6	%	86	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Laboratory QC

Report: 664415
Project: DRINKING
Group: ORGANICS - EPA 500's

Alpha Analytical Laboratories, Inc.

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Phenanthrene-d10 (I)			92.3	%	92	(50-150)		
LCS2	Phenanthrene-d10 (I)			101	%	101	(50-150)		
MBLK	Phenanthrene-d10 (I)			103	%	103	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			78.7	%	79	(50-150)		
MS_201706010849	Phenanthrene-d10 (I)			94.9	%	95	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

June 21, 2017

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Lab ID : SP 1706728
Customer : 2-20626

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative	(2 pages)	: An overview of the work performed at FGL.
Sample Results	(1 page)	: Results for each sample submitted.
Quality Control	(2 pages)	: Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
LGRS-05: Rotary Deep	06/01/2017	06/06/2017	SP 1706728-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at room temperature. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio QC

900.0	06/08/2017:208502 All analysis quality controls are within established criteria
	06/07/2017:206693 All preparation quality controls are within established criteria
903.0	06/14/2017:208817 All analysis quality controls are within established criteria
	06/11/2017:206813 All preparation quality controls are within established criteria
905.0	06/11/2017:208752 All analysis quality controls are within established criteria
	06/08/2017:206809 All preparation quality controls are within established criteria
906.0	06/08/2017:208428 All analysis quality controls are within established criteria
	06/06/2017:206665 All preparation quality controls are within established criteria

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706728
Customer : 2-20626

Radio QC

Ra - 05	06/19/2017:209052 All analysis quality controls are within established criteria
	06/15/2017:206808 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**

Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-06-21

June 21, 2017

Lab ID : SP 1706728-001
Customer ID : 2-20626

Alpha Analytical Laboratories, Inc.
Attn: Leslie Quinn
208 Mason St.
Ukiah, CA 95482

Sampled On : June 1, 2017-10:05
Sampled By : Not Available
Received On : June 6, 2017-10:00
Matrix : Water

Description : LGRS-05: Rotary Deep
Project : 17F0151

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.93 ± 0.747	0.594	pCi/L	15/5	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-15:55 2A1708502
Gross Beta	0.494 ± 0.588	0.730	pCi/L	50	900.0	06/07/17-08:50 2P1706693	900.0	06/08/17-15:55 2A1708502
Strontium 90	0.216 ± 0.306	0.491	pCi/L	8	905.0	06/08/17-18:20 2P1706809	905.0	06/11/17-17:30 2A1708752
Total Alpha Radium (226)	0.000 ± 0.123	0.363	pCi/L	3	903.0	06/11/17-16:30 2P1706813	903.0	06/14/17-16:00 2A1708817
Tritium	42.1 ± 272	434	pCi/L	20000	906.0	06/06/17-15:05 2P1706665	906.0	06/08/17-06:00 2A1708428
Ra 228	0.000 ± 0.234	0.192	pCi/L	2	Ra - 05	06/15/17-18:45 2P1706808	Ra - 05	06/19/17-19:20 2A1709052

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:
Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

June 21, 2017
Alpha Analytical Laboratories, Inc.

Lab ID : SP 1706728
Customer : 2-20626

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	06/08/17:208502aat	CCV	cpm	8767	41.7 %	35-47	
			CCB	cpm		0.100	0.18	
Beta	900.0	06/08/17:208502aat	CCV	cpm	8767	86.8 %	83-94	
			CCB	cpm		0.3800	0.48	
Gross Alpha	900.0	06/07/17:206693aat	Blank	pCi/L		1.00	3	
			LCS	pCi/L	108.2	91.5 %	75-125	
			BS	pCi/L	108.2	106 %	60-140	
			BSD	pCi/L	108.2	126 %	60-140	
			BSRPD	pCi/L	108.2	17.0%	≤30	
Gross Beta	900.0	06/07/17:206693aat	Blank	pCi/L		-0.54	4	
			LCS	pCi/L	73.11	105 %	93-144	
			BS	pCi/L	73.11	91.1 %	80-130	
			BSD	pCi/L	73.11	97.8 %	80-130	
			BSRPD	pCi/L	108.2	7.2%	≤30	
Alpha	903.0	06/14/17:208817rmm	CCV	cpm	8385	42.3 %	37-46	
			CCB	cpm		0.0600	0.16	
Total Alpha Radium (226)	903.0	06/11/17:206813emv	RgBlk	pCi/L		0.06	2	
			LCS	pCi/L	21.85	66.8 %	52-107	
			BS	pCi/L	21.85	63.4 %	43-111	
			BSD	pCi/L	21.85	56.1 %	43-111	
			BSRPD	pCi/L	21.85	12.3%	≤35.5	
Beta	905.0	06/11/17:208752rmm	CCV	cpm	8766	88.1 %	85-93	
			CCB	cpm		0.4600	0.51	
Total Strontium	905.0	06/08/17:206809emv	RgBlk	pCi/L		-0.002	2	
			LRS	pCi/L	36.69	78.5 %	53-133	
			BS	pCi/L	36.69	97.5 %	75-125	
			BSD	pCi/L	36.69	97.8 %	75-125	
			BSRPD	pCi/L	36.69	0.3%	≤20	
Tritium	906.0	06/06/17:206665elc	Blank	pCi/L		-7	<300	
			LCS	pCi/L	1678	108 %	75-125	
			BS	pCi/L	1678	96.9 %	75-125	
			BSD	pCi/L	1678	105 %	75-125	
			BSRPD	pCi/L	1678	7.6%	≤25	
	906.0	06/08/17:208428elc	CCV	pCi/L	28900	103 %	90-110	
			CCB	pCi/L		246	500	
Beta	Ra - 05	06/19/17:209052emv	CCV	cpm	8759	89.9 %	84-94	
			CCB	cpm		0.3800	0.51	
Ra 228	Ra - 05	06/15/17:206808emv	RgBlk	pCi/L		0.01	3	
			LRS	pCi/L	37.60	84.8 %	65-108	
			BS	pCi/L	37.60	104 %	75-125	
			BSD	pCi/L	37.60	102 %	75-125	
			BSRPD	pCi/L	37.60	1.4%	≤25	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.

Quality Control - Radio

Definition	
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

ASBESTOS TEM LABORATORIES, INC.

EPA 600/4-83 Drinking Water Transmission Electron Microscopy Analytical Report

Laboratory Job #349920

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429

ASBESTOS TEM LABORATORIES, INC

Certified by
CA DPH ELAP
Lab No. 1866

Jun/16/2017

david S. Pingatore
Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

RE: LABORATORY JOB # 349920
Transmission electron microscopy analytical results for 1 water sample(s).
Job Site:
Job No.: 17F0151

Enclosed please find results for the TEM analysis of one or more water samples. The analytical procedures were performed according to EPA Method 100.2 for the analysis of asbestos in drinking water.

Prior to analysis, samples are checked for damage, disruption of any chain-of-custody seals, and completeness of accompanying paperwork. If no problems are found, samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Preparation of water samples is performed within a HEPA filtered, Class 100 air, laminar flow clean bench environment. Prior to filtration, water sample containers are ultrasonicated, and the exterior surfaces cleaned. An aliquot of water is drawn from the sample container and drawn through a special filtration apparatus and collected onto a mixed cellulose ester (MCE) or polycarbonate (PC) filter. The filters are removed from the apparatus and dried. A portion of each sample filter is sectioned, placed onto a glass microscope slide, and carbon coated. The filters are further sectioned and placed carbon side up onto 200-mesh copper TEM sample grids in a solvent bath until all filter material is dissolved. The TEM grids are removed and placed into labeled grid storage boxes.

TEM analysis is performed on a Philips EM-300 or CM-12 transmission electron microscope operating at 80 or 100 kV. Initially, the grid is scanned at low and medium magnification to insure proper sample loading, and coherence of the carbon support film. Then TEM grid openings are analyzed at a magnification of 10,000X. All fibers >10 um in length and exhibiting an aspect ratio >3:1 are analyzed. Scanning continues until either 100 asbestiform fibers >10um in length are counted, or an analytical sensitivity of 0.2 million fibers per liter (MFL) is achieved. Analyzed fibers are subjected to detailed morphological and selected area diffraction (SAED) analysis. Fibers indicated as asbestos, or potentially asbestos, are further analyzed by energy dispersive X-ray (EDX) analysis as needed. The number of asbestos fibers detected, and other analytical parameters, are then used to calculate the concentration of asbestos in MFL. The results are entered into a standard report format and reviewed by the analyst and the laboratory manager before release to the client.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, with the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

TRANSMISSION ELECTRON MICROSCOPY
ANALYTICAL REPORT

Contact: david S. Pingatore

Address: Alpha Analytical Laboratories, Inc.
208 Mason Street
Ukiah, CA 95482

Job Site / No. 17F0151

Report No.: 349920
Date: Jun-16-17
Total Samples Analyzed: 1
Sample Collector:

CLIENT SAMPLE # 17F0151-01

Laboratory Sample # 1288-01175-001

SAMPLE LOCATION/DESCRIPTION
LGRS-05: Rotary Deep [Water]

WATER SAMPLE DATA

Date/Time Collected	Jun-01-17 / 10:05 am		Volume Submitted (ml)	1000
Date/Time Lab Received	Jun-02-17 / 11:53 am		Volume Filtered (ml)	15
Date/Time Filtered	Jun-05-17 / 9:05 pm		Filter & Pore Size	MCE0.22
Date/Time Analyzed	Jun-16-17 / 12:00 pm		UV/Ozone Treated:	YES

IDENTIFIED STRUCTURES (>10um)			
ASBESTOS		OTHER	
CHRYS	AMPH	AMBIG	NON-ASB
NSD	NSD	NSD	NSD

CALCULATED ASBESTOS STRUCTURE CONCENTRATION (>10um)		
CHRYS	AMPH	TOTAL
< 0.2 MFL	< 0.2 MFL	< 0.2 MFL

COMMENTS

No Asbestos Detected

Filter Loading: MODERATE

SAED Photo ID Nos.

TEM / ANALYTICAL PARAMETERS

Grid Openings Scanned at 10,000X	8	Analytical Sensitivity	0.2 MFL
Grid Opening Area (mm2)	0.0088	95% UCL	0.70 MFL
Scan Area (mm2)	0.0704	95% LCL	0 MFL

WATER SAMPLE LAB BLANK RESULTS

Lab ID#	TLB-18468	Analytical Sensitivity	0.01 MFL
Grid Openings Scanned at 10,000X	8	Asbestos Structure Concentration	<0.01 MFL
Volume Filtered (ml)	300		

NOTATION KEY

Chrys. - Chrysotile Asbestos	1 um = 1 micron = 0.001 mm
Amph. - Amphibole Asbestos	MFL = Millions of Fibers per Liter
NSD - No Structures Detected	UCL = Upper Confidence Level
1 mm = 1 millimeter	LCL = Lower Confidence Level

Analyzed by Yang Zhang

Crystal Replogle

Reviewed by Crystal Replogle

349920

SUBCONTRACT ORDER

Alpha Analytical Laboratories, Inc.

17F0151

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Alpha Analytical Laboratories, Inc.	Asbestos TEM Laboratories, Inc.
208 Mason St.	630 Bancroft Way
Ukiah, CA 95482	Berkeley, CA 94710
Phone: (707)468-0401	Phone :(510) 704-8930
Fax: (707)468-5267	Fax: (510) 704-8429
Project Manager: David S. Pingatore	**Terms: Net 30**

Analysis	Due	Expires	Comments
17F0151-01 LGRS-05: Rotary Deep [Water] Sampled 06/01/17 10:05		6-8 6.1	
Asbestos-DW SUB	06/16/17 12:00	06/03/17 10:05	

Containers Supplied:

1L Amber- Unpres. (J) 1L Amber- Unpres. (K)

☐ *Report to State*

System Name: ________ **Employed by:** ________

User ID: ________ **Sampler:** ________

System Number: ________

	6/2/17		11:53 RECEIVED JUN 02
Released By	Date	Received By	Date
Released By	Date	Received By	Date

Alpha Analytical Laboratories Inc.
www.alpha-labs.com
WATERS, SEDIMENTS, SOLIDS

Corporate Laboratory
208 Mason Street, Ukiah CA 95482
707-468-0401 F) 707-468-5267
email: clientservices@alpha-labs.com

ELAP Certifications
Ukiah 1551 / Dublin 2728 / Elk Grove 2922

Bay Area Laboratory
6398 Dougherty Rd #35 Dublin CA 94568
925-828-6226 F) 925-828-6309

Central Valley Laboratory
9090 Union Park Way #113, Elk Grove CA 95624
916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 17F0151 Pg 1 of 1

Signature below authorizes work under terms stated on reverse side.

Report to

Company: Todd Groundwater
Attn: Amber J Ritchie, GIT
Address: 2490 Mariner Square Loop, Suite 215
Alameda CA 94501
Phone/Fax: 510-747.6920 x103; 846.633.9712
Email Address: aritchie@toddgroundwater.com

Invoice to (if different)

Contact:
Email address:
Address:
Phone/Fax:

Project Information

Project ID: SCVWD IPR
JD Morgan Park
Project No:
PO Number: 37809

Field Sampler - Printed Name & Signature:

TAT
Standard 10 days ●
RUSH: 5 days ○
48 hours ○
Other: ____days ○
Lab preapproval required

Temp upon Receipt °C
Ukiah temp: 3.2°
Dublin temp: 2.0°C
Elk Grove temp:

Sample Identification	Sampling Date	Sampling Time	Container: 40ml Vial	Container: Poly	Container: Glass	Container: Sleeve	Container: Other	Preservative: HCl	Preservative: HNO3	Preservative: H2SO4	Preservative: Other	Preservative: None	Matrix: Water	Matrix: Soil	Matrix: Other	Total Number of Containers per Sample ID	DU - General Physical 500ml	inorganics / general Mineral / Perchlorte / U 200.8	Cr6 218.6 DW	524.2 DDW Volatiles	DDW 504.1 507 508 515.1 525.2 531.1 547 548 549	DU pull - Asbestos DW (sub TEM) 1L	Dioxin 2,3,7,8 TCDD (sub Ceres)	Gross Alpha & Beta (sub FGL)	Radium 226 & 228 (sub FGL)	Strontium 90 / Tritium (sub FGL)	j-flag MDL format	Sample Notes or DDW Source Numbers:
LGRS-05: Rotary Deep Morgan Park 01	6-1-17	1005											x			1	x										x	
													x			3		x										
													x			1			x									
													x			4				x								
													x			16					x							
													x			2						x						
													x			2							x					
													x			1								x				
													x			3									x			
													x			3										x		

Relinquished by	Received by	Date	Time
		6-1-17	1555
	RS	6/1/17	1815
RS		6-1-17	18:55
		6-1-17	21:50

DDW Write On EDT Transmission? ○ Yes ● No
State System Number:
If "Y" please enter the Source Number(s) in the column above

CA Geotracker EDF Report? ○ Yes ○ No
Global ID:
Sampling Company Log Code:
EDF to (Email Address):

Travel and Site Time:	Mileage:	Misc. Supplies:

Appendix P--McCampbell Analytical, Inc. and Santa Clara Valley Water District Analytical Reports

Due to size, **Appendices O** and **P** are provided as a separate stand-alone Adobe™ document separate from the remainder of this report.

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder:	1703B71
Report Created for:	Todd Groundwater
	2490 Mariner Square Loop, Suite 215 Alameda, CA 94501
Project Contact:	Edwin Lin
Project P.O.:	
Project Name:	37809; SCVWD IPR
Project Received:	03/23/2017

Analytical Report reviewed & approved for release on 03/29/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: 37809; SCVWD IPR
WorkOrder: 1703B71

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

N	collection date not provided

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: 37809; SCVWD IPR
WorkOrder: 1703B71

Quality Control Qualifiers

F13	Indigenous sample results too high for a representative matrix spike analysis.

Analytical Report

Client: Todd Groundwater
Date Received: 3/23/17 9:34
Date Prepared: 3/29/17
Project: 37809; SCVWD IPR

WorkOrder: 1703B71
Extraction Method: SM2320 B-1997
Analytical Method: SM2320 B
Unit: mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1703B71-001A**	**Water**	**<Not Provided>**	**Titrino**	**136392**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**25.5**	N	1.00	1	03/29/2017 10:20
Carbonate	ND	N	1.00	1	03/29/2017 10:20
Bicarbonate	**25.5**	N	1.00	1	03/29/2017 10:20
Hydroxide	ND	N	1.00	1	03/29/2017 10:20

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E200.8
Date Prepared:	3/23/17	**Analytical Method:**	E200.8
Project:	37809; SCVWD IPR	**Unit:**	mg $CaCO_3$/L

Hardness by SM2340B Calculation

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1703B71-001A**	**Water**	**<Not Provided>**	**ICP-MS3**	**136087**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hardness	**0.175**	N	0.0824	1	03/27/2017 22:29

Analyst(s): DVH

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM4500H+B-2000
Date Prepared:	3/24/17	**Analytical Method:**	SM4500H+B
Project:	37809; SCVWD IPR	**Unit:**	pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1703B71-001A**	**Water**	**<Not Provided>**	**WetChem**	**136131**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.55**	N	±0.05	1	03/24/2017 17:33

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	RSK175
Date Prepared:	3/28/17	**Analytical Method:**	RSK175
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Dissolved Carbon Dioxide by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1703B71-001A**	**Water**	**<Not Provided>**	**GC26**	**136356**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Carbon Dioxide	**1200**	N	50	1	03/28/2017 13:57

Analyst(s): AK

Angela Rydelius, Lab Manager

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	3/29/17	**BatchID:**	136392
Date Analyzed:	3/29/17	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	37809; SCVWD IPR		

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1703A95-001K	296	1	291	1	1.73	<20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	3/23/17	**BatchID:**	136087
Date Analyzed:	3/24/17	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-136087 1703A62-005EMS/MSD

QC Summary Report for Hardness

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Calcium	ND	5160	100	5000	-	103	85-115
Magnesium	ND	5280	20	5000	-	106	85-115
Surrogate Recovery							
Terbium	758.9	789		750	101	105	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Calcium	75,800	73,700	5000	68,000	161,F13	119	75-125	2.77	20
Magnesium	58,200	56,800	5000	52,000	114	86	75-125	2.45	20
Surrogate Recovery									
Terbium	791	803	750		105	107	70-130	1.53	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Calcium	71,200	68,000	4.71	20
Magnesium	54,400	52,000	4.62	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	3/23/17 - 3/24/17	**BatchID:**	136131
Date Analyzed:	3/23/17 - 3/24/17	**Extraction Method:**	SM4500H+B-2000
Instrument:	WetChem	**Analytical Method:**	SM4500H+B
Matrix:	Water	**Unit:**	pH units @ 25°C
Project:	37809; SCVWD IPR		

QC Summary Report for pH

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1703B54-001C	7.02	1	7.03	1	0.01	0.1
1703B71-001A	7.55	1	7.56	1	0.01	0.1
1703C31-001B	8.24	1	8.24	1	0	0.1

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	3/28/17	**BatchID:**	136356
Date Analyzed:	3/28/17	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-136356

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Carbon Dioxide	ND	153	50	187.2	-	82	70-130

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1703B71 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☑ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ▨ J-flag

Report to:
Edwin Lin
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: elin@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: 37809; SCVWD IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **03/23/2017**
Date Logged: **03/23/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1703B71-001	Raw Water	Water	<Not Provided>	☐	A	A	A	A	A							

Test Legend:

1	300_1_W	2	Alk_W	3	HARDMS_W	4	PH_W
5	RSK175_CO2_W	6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger **Prepared by: Jena Alfaro**

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Edwin Lin
Contact's Email: elin@toddgroundwater.com

Project: 37809; SCVWD IPR
Comments:

Work Order: 1703B71
QC Level:
Date Logged: 3/23/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☑ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1703B71-001A	Raw Water	Water	RSK175 (CO2)	1	2.5 G HDPE	☐	<Not Provided>	5 days		☐	
			SM4500H+B (pH)			☐		5 days		☐	
			SM2340B (Hardness)			☐		5 days		☐	
			SM2320B (Alkalinity)			☐		5 days		☐	
						☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

MAI Work Order # 1703B71

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	☐	2 Day Rush	☐	3 Day Rush	☐	STD	●	Quote #	
J-Flag / MDL	☐	ESL	☐	Cleanup Approved	☐			Bottle Order #	
Delivery Format: PDF	☐	GeoTracker EDF	☐	EDD	●	Write On (DW)	☐	EQuIS	☐

Report To: Edwin Lin Bill To: Sally McCraven
Company: Todd Groundwater
Email: elin@toddgroundwater.com
Alt Email: Tele: 510-747-6920 x104
Project Name: SCVWD IPR Project #: 37809
Project Location: Morgan Park PO #
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	Modified SPLP (2 permeates)	HH Extraction
Morgan Park Mon. Well 131'	3/10/17	11:09	2	Soil	None	●	●
Morgan Park Mon. Well 195'	3/13/17	16:04	2	Soil	None	●	●
Morgan Park Mon. Well 283'	3/15/17	12:37	2	Soil	None	●	●

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
EDWIN LIN (TODD GROUNDWATER)	3/22/17	15:30	Fedex		
Fedex				3/23/17	934

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Sample Receipt Checklist

Client Name:	**Todd Groundwater**	Date and Time Received	**3/23/2017 09:34**
Project Name:	**37809; SCVWD IPR**	Date Logged:	**3/23/2017**
		Received by:	Jena Alfaro
WorkOrder №:	**1703B71** Matrix: Water	Logged by:	Jena Alfaro
Carrier:	FedEx		

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp:		NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☐	No ☑	

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1610568 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: Raw Water-Prescreen Testing

Project Received: 10/13/2016

Analytical Report reviewed & approved for release on 10/19/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: Raw Water-Prescreen Testing
WorkOrder: 1610568

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
c1	surrogate recovery outside of the control limits due to the dilution of the sample.

Case Narrative

Client: Todd Groundwater
Project: Raw Water-Prescreen Testing
Work Order: 1610568
December 09, 2016

Langelier Index by SM2330B Calculations at 23 degrees C:

Permeate Chem Dose 1; 1610568-004A
Langelier Index = -1.118594276

Permeate Chem Dose 2; 1610568-005A
Langelier Index = -0.887624665

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1610568
Project: Raw Water-Prescreen Testing December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	**Chemical dose 1**	**Chemical dose 2**
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**CaCl2 and NaOH**	**CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**Measured Value: CaCl2 and NaOH**	**Measured Value: CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Case Narrative

Client: Todd Groundwater
Project: Raw Water-Prescreen Testing
Work Order: 1610568
December 09, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 2: 35
Sonic 3: 10, 15

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.
3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.
4. Leachate from each vial was filtered thru 0.45 micron filter.
5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E218.6
Date Prepared:	12/5/16	**Analytical Method:**	E218.6
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC2**	**130793**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.00020	1	12/02/2016 21:26

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC2**	**130793**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.00020	1	12/02/2016 21:48

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E300.1
Date Prepared:	12/1/16	**Analytical Method:**	E300.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC3**	**130573**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	12/03/2016 01:40
Chloride	**40**	5.0	50	12/01/2016 19:19
Fluoride	ND	0.10	1	12/03/2016 01:40
Nitrate as N	**2.3**	0.10	1	12/03/2016 01:40
Nitrate as NO3$^-$	**10**	0.45	1	12/03/2016 01:40
Nitrite as N	ND	0.10	1	12/03/2016 01:40
Nitrite as NO2$^-$	ND	0.33	1	12/03/2016 01:40
Sulfate	**0.29**	0.10	1	12/03/2016 01:40

Surrogates	REC (%)	Qualifiers	Limits	
	0	S	90-115	12/03/2016 01:40

Analyst(s): AO
Analytical Comments: c1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC3**	**130573**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	12/03/2016 02:18
Chloride	**40**	5.0	50	12/01/2016 19:57
Fluoride	ND	0.10	1	12/03/2016 02:18
Nitrate as N	**2.3**	0.10	1	12/03/2016 02:18
Nitrate as NO3$^-$	**10**	0.45	1	12/03/2016 02:18
Nitrite as N	ND	0.10	1	12/03/2016 02:18
Nitrite as NO2$^-$	ND	0.33	1	12/03/2016 02:18
Sulfate	**0.31**	0.10	1	12/03/2016 02:18

Surrogates	REC (%)	Qualifiers	Limits	
	0	S	90-115	12/03/2016 02:18

Analyst(s): AO
Analytical Comments: c1

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E300.1
Date Prepared:	10/17/16	**Analytical Method:**	E300.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**IC3**	**128179**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**0.31**	0.10	1	10/17/2016 14:23

Surrogates	REC (%)	Limits	Date Analyzed
Formate	109	85-115	10/17/2016 14:23

Analyst(s): AO

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E314.0
Date Prepared:	12/2/16	**Analytical Method:**	E314.0
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC1**	**130680**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	12/02/2016 01:11

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC1**	**130680**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	12/02/2016 01:51

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	10/17/2016 12:14
tert-Amyl methyl ether (TAME)	ND	0.50	1	10/17/2016 12:14
Benzene	ND	0.50	1	10/17/2016 12:14
Bromobenzene	ND	0.50	1	10/17/2016 12:14
Bromochloromethane	ND	0.50	1	10/17/2016 12:14
Bromodichloromethane	ND	0.50	1	10/17/2016 12:14
Bromoform	ND	0.50	1	10/17/2016 12:14
Bromomethane	ND	0.50	1	10/17/2016 12:14
2-Butanone (MEK)	ND	2.0	1	10/17/2016 12:14
t-Butyl alcohol (TBA)	ND	2.0	1	10/17/2016 12:14
n-Butyl benzene	ND	0.50	1	10/17/2016 12:14
sec-Butyl benzene	ND	0.50	1	10/17/2016 12:14
tert-Butyl benzene	ND	0.50	1	10/17/2016 12:14
Carbon Disulfide	ND	0.50	1	10/17/2016 12:14
Carbon Tetrachloride	ND	0.50	1	10/17/2016 12:14
Chlorobenzene	ND	0.50	1	10/17/2016 12:14
Chloroethane	ND	0.50	1	10/17/2016 12:14
Chloroform	**0.73**	0.50	1	10/17/2016 12:14
Chloromethane	ND	0.50	1	10/17/2016 12:14
2-Chlorotoluene	ND	0.50	1	10/17/2016 12:14
4-Chlorotoluene	ND	0.50	1	10/17/2016 12:14
Dibromochloromethane	ND	0.50	1	10/17/2016 12:14
1,2-Dibromo-3-chloropropane	ND	0.20	1	10/17/2016 12:14
1,2-Dibromoethane (EDB)	ND	0.50	1	10/17/2016 12:14
Dibromomethane	ND	0.50	1	10/17/2016 12:14
1,2-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,3-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,4-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
Dichlorodifluoromethane	ND	0.50	1	10/17/2016 12:14
1,1-Dichloroethane	ND	0.50	1	10/17/2016 12:14
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	10/17/2016 12:14
1,1-Dichloroethene	ND	0.50	1	10/17/2016 12:14
cis-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:14
trans-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:14
1,2-Dichloropropane	ND	0.50	1	10/17/2016 12:14
1,3-Dichloropropane	ND	0.50	1	10/17/2016 12:14
2,2-Dichloropropane	ND	0.50	1	10/17/2016 12:14

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	10/17/2016 12:14
cis-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:14
trans-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:14
Diisopropyl ether (DIPE)	ND	0.50	1	10/17/2016 12:14
Ethylbenzene	ND	0.50	1	10/17/2016 12:14
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	10/17/2016 12:14
Freon 113	ND	0.50	1	10/17/2016 12:14
Hexachlorobutadiene	ND	0.50	1	10/17/2016 12:14
Hexachloroethane	ND	0.50	1	10/17/2016 12:14
2-Hexanone	ND	0.50	1	10/17/2016 12:14
Isopropylbenzene	ND	0.50	1	10/17/2016 12:14
4-Isopropyl toluene	ND	0.50	1	10/17/2016 12:14
Methyl-t-butyl ether (MTBE)	ND	0.50	1	10/17/2016 12:14
Methylene chloride	ND	0.50	1	10/17/2016 12:14
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	10/17/2016 12:14
Naphthalene	ND	0.50	1	10/17/2016 12:14
n-Propyl benzene	ND	0.50	1	10/17/2016 12:14
Styrene	ND	0.50	1	10/17/2016 12:14
1,1,1,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:14
1,1,2,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:14
Tetrachloroethene	ND	0.50	1	10/17/2016 12:14
Toluene	ND	0.50	1	10/17/2016 12:14
1,2,3-Trichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,2,4-Trichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,1,1-Trichloroethane	ND	0.50	1	10/17/2016 12:14
1,1,2-Trichloroethane	ND	0.50	1	10/17/2016 12:14
Trichloroethene	ND	0.50	1	10/17/2016 12:14
Trichlorofluoromethane	ND	0.50	1	10/17/2016 12:14
1,2,3-Trichloropropane	ND	0.50	1	10/17/2016 12:14
1,2,4-Trimethylbenzene	ND	0.50	1	10/17/2016 12:14
1,3,5-Trimethylbenzene	ND	0.50	1	10/17/2016 12:14
Vinyl Chloride	ND	0.50	1	10/17/2016 12:14
Xylenes, Total	ND	0.50	1	10/17/2016 12:14

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	94	70-130		10/17/2016 12:14
Toluene-d8	91	70-130		10/17/2016 12:14
4-BFB	81	70-130		10/17/2016 12:14

Analyst(s): MW

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	10/17/2016 12:54
tert-Amyl methyl ether (TAME)	ND	0.50	1	10/17/2016 12:54
Benzene	ND	0.50	1	10/17/2016 12:54
Bromobenzene	ND	0.50	1	10/17/2016 12:54
Bromochloromethane	ND	0.50	1	10/17/2016 12:54
Bromodichloromethane	ND	0.50	1	10/17/2016 12:54
Bromoform	ND	0.50	1	10/17/2016 12:54
Bromomethane	ND	0.50	1	10/17/2016 12:54
2-Butanone (MEK)	ND	2.0	1	10/17/2016 12:54
t-Butyl alcohol (TBA)	ND	2.0	1	10/17/2016 12:54
n-Butyl benzene	ND	0.50	1	10/17/2016 12:54
sec-Butyl benzene	ND	0.50	1	10/17/2016 12:54
tert-Butyl benzene	ND	0.50	1	10/17/2016 12:54
Carbon Disulfide	ND	0.50	1	10/17/2016 12:54
Carbon Tetrachloride	ND	0.50	1	10/17/2016 12:54
Chlorobenzene	ND	0.50	1	10/17/2016 12:54
Chloroethane	ND	0.50	1	10/17/2016 12:54
Chloroform	ND	0.50	1	10/17/2016 12:54
Chloromethane	ND	0.50	1	10/17/2016 12:54
2-Chlorotoluene	ND	0.50	1	10/17/2016 12:54
4-Chlorotoluene	ND	0.50	1	10/17/2016 12:54
Dibromochloromethane	ND	0.50	1	10/17/2016 12:54
1,2-Dibromo-3-chloropropane	ND	0.20	1	10/17/2016 12:54
1,2-Dibromoethane (EDB)	ND	0.50	1	10/17/2016 12:54
Dibromomethane	ND	0.50	1	10/17/2016 12:54
1,2-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,3-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,4-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
Dichlorodifluoromethane	ND	0.50	1	10/17/2016 12:54
1,1-Dichloroethane	ND	0.50	1	10/17/2016 12:54
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	10/17/2016 12:54
1,1-Dichloroethene	ND	0.50	1	10/17/2016 12:54
cis-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:54
trans-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:54
1,2-Dichloropropane	ND	0.50	1	10/17/2016 12:54
1,3-Dichloropropane	ND	0.50	1	10/17/2016 12:54
2,2-Dichloropropane	ND	0.50	1	10/17/2016 12:54

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	10/17/2016 12:54
cis-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:54
trans-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:54
Diisopropyl ether (DIPE)	ND	0.50	1	10/17/2016 12:54
Ethylbenzene	ND	0.50	1	10/17/2016 12:54
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	10/17/2016 12:54
Freon 113	ND	0.50	1	10/17/2016 12:54
Hexachlorobutadiene	ND	0.50	1	10/17/2016 12:54
Hexachloroethane	ND	0.50	1	10/17/2016 12:54
2-Hexanone	ND	0.50	1	10/17/2016 12:54
Isopropylbenzene	ND	0.50	1	10/17/2016 12:54
4-Isopropyl toluene	ND	0.50	1	10/17/2016 12:54
Methyl-t-butyl ether (MTBE)	ND	0.50	1	10/17/2016 12:54
Methylene chloride	ND	0.50	1	10/17/2016 12:54
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	10/17/2016 12:54
Naphthalene	ND	0.50	1	10/17/2016 12:54
n-Propyl benzene	ND	0.50	1	10/17/2016 12:54
Styrene	ND	0.50	1	10/17/2016 12:54
1,1,1,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:54
1,1,2,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:54
Tetrachloroethene	ND	0.50	1	10/17/2016 12:54
Toluene	ND	0.50	1	10/17/2016 12:54
1,2,3-Trichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,2,4-Trichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,1,1-Trichloroethane	ND	0.50	1	10/17/2016 12:54
1,1,2-Trichloroethane	ND	0.50	1	10/17/2016 12:54
Trichloroethene	ND	0.50	1	10/17/2016 12:54
Trichlorofluoromethane	ND	0.50	1	10/17/2016 12:54
1,2,3-Trichloropropane	ND	0.50	1	10/17/2016 12:54
1,2,4-Trimethylbenzene	ND	0.50	1	10/17/2016 12:54
1,3,5-Trimethylbenzene	ND	0.50	1	10/17/2016 12:54
Vinyl Chloride	ND	0.50	1	10/17/2016 12:54
Xylenes, Total	ND	0.50	1	10/17/2016 12:54

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	94	70-130		10/17/2016 12:54
Toluene-d8	90	70-130		10/17/2016 12:54
4-BFB	79	70-130		10/17/2016 12:54

Analyst(s): MW

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E350.1
Date Prepared:	12/6/16	**Analytical Method:**	E350.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130841**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.40**	0.10	1	12/06/2016 14:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130841**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.49**	0.10	1	12/06/2016 14:51

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2320 B-1997
Date Prepared:	12/5/16	**Analytical Method:**	SM2320 B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**Titrino**	**130761**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**30.1**	1.00	1	12/05/2016 15:28
Carbonate	ND	1.00	1	12/05/2016 15:28
Bicarbonate	**30.1**	1.00	1	12/05/2016 15:28
Hydroxide	ND	1.00	1	12/05/2016 15:28

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**Titrino**	**130761**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**39.2**	1.00	1	12/05/2016 15:30
Carbonate	ND	1.00	1	12/05/2016 15:30
Bicarbonate	**39.2**	1.00	1	12/05/2016 15:30
Hydroxide	ND	1.00	1	12/05/2016 15:30

Analyst(s): HN

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2320 B-1997
Date Prepared:	10/14/16	**Analytical Method:**	SM2320 B-1997
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**Titrino**	**128134**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**25.3**	1.00	1	10/14/2016 09:33
Carbonate	ND	1.00	1	10/14/2016 09:33
Bicarbonate	**25.3**	1.00	1	10/14/2016 09:33
Hydroxide	ND	1.00	1	10/14/2016 09:33

Analyst(s): HN

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E200.8
Date Prepared:	10/14/16	**Analytical Method:**	E200.8
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**ICP-MS3**	**128098**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	10/17/2016 10:49
Arsenic	ND	0.50	1	10/17/2016 10:49
Barium	ND	5.0	1	10/17/2016 10:49
Beryllium	ND	0.50	1	10/17/2016 10:49
Cadmium	ND	0.25	1	10/17/2016 10:49
Chromium	ND	0.50	1	10/17/2016 10:49
Cobalt	ND	0.50	1	10/17/2016 10:49
Copper	ND	2.0	1	10/17/2016 10:49
Lead	ND	0.50	1	10/17/2016 10:49
Mercury	ND	0.050	1	10/17/2016 10:49
Molybdenum	ND	0.50	1	10/17/2016 10:49
Nickel	ND	0.50	1	10/17/2016 10:49
Selenium	ND	0.50	1	10/17/2016 10:49
Silver	ND	0.19	1	10/17/2016 10:49
Thallium	ND	0.50	1	10/17/2016 10:49
Vanadium	ND	0.50	1	10/17/2016 10:49
Zinc	ND	15	1	10/17/2016 10:49

Surrogates	REC (%)	Limits	
Terbium	106	70-130	10/17/2016 10:49

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-Cl G
Date Prepared:	12/6/16	**Analytical Method:**	SM4500-Cl G
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130739**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	12/06/2016 14:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130739**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	**0.17**	0.040	1	12/06/2016 14:19

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-Cl E
Date Prepared:	10/13/16	**Analytical Method:**	SM4500-Cl E
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Chlorine as Cl_2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**Titrino**	**128107**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	**1.5**	H	0.40	10	10/13/2016 20:17

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	12/5/16	**Analytical Method:**	SM4500-O G-2001
Project:	Raw Water-Prescreen Testing	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130754**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**9.07 @ 21.2°C**	1.00	1	12/05/2016 13:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130754**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.83 @ 21.4°C**	1.00	1	12/05/2016 13:50

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E200.8
Date Prepared:	10/14/16	**Analytical Method:**	E200.8
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Hardness by SM2340B Calculation

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**ICP-MS3**	**128098**

Analytes	Result	RL	DF	Date Analyzed
Hardness	**0.165**	0.0824	1	10/17/2016 10:49
Hardness, Calcium (As CaCO3)	ND	0.250	1	10/17/2016 10:49

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	106	70-130	10/17/2016 10:49

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6020
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-MS2**	**130764**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	0.050	1	12/07/2016 19:36
Antimony	ND	0.00050	1	12/07/2016 19:36
Arsenic	ND	0.00050	1	12/07/2016 19:36
Barium	ND	0.0050	1	12/07/2016 19:36
Beryllium	ND	0.00050	1	12/07/2016 19:36
Cadmium	ND	0.00025	1	12/07/2016 19:36
Calcium	**19**	0.10	1	12/07/2016 19:36
Chromium	ND	0.00050	1	12/07/2016 19:36
Cobalt	ND	0.00050	1	12/07/2016 19:36
Copper	ND	0.00050	1	12/07/2016 19:36
Iron	ND	0.020	1	12/07/2016 19:36
Lead	ND	0.00050	1	12/07/2016 19:36
Lithium	ND	0.0050	1	12/07/2016 20:48
Magnesium	**0.048**	0.020	1	12/07/2016 19:36
Manganese	ND	0.020	1	12/07/2016 19:36
Mercury	ND	0.000050	1	12/07/2016 19:36
Molybdenum	ND	0.00050	1	12/07/2016 19:36
Nickel	ND	0.00050	1	12/07/2016 19:36
Potassium	**1.1**	0.020	1	12/07/2016 19:36
Selenium	ND	0.00050	1	12/07/2016 19:36
Silver	ND	0.00050	1	12/07/2016 19:36
Sodium	**22**	0.10	1	12/07/2016 19:36
Strontium	ND	0.020	1	12/07/2016 19:36
Thallium	ND	0.00050	1	12/07/2016 19:36
Uranium	ND	0.00050	1	12/07/2016 19:36
Vanadium	ND	0.00050	1	12/07/2016 19:36
Zinc	ND	0.0050	1	12/07/2016 19:36

Analyst(s): BBO, MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6020
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-MS2**	**130764**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	0.050	1	12/07/2016 19:42
Antimony	ND	0.00050	1	12/07/2016 19:42
Arsenic	ND	0.00050	1	12/07/2016 19:42
Barium	ND	0.0050	1	12/07/2016 19:42
Beryllium	ND	0.00050	1	12/07/2016 19:42
Cadmium	ND	0.00025	1	12/07/2016 19:42
Calcium	**19**	0.10	1	12/07/2016 19:42
Chromium	ND	0.00050	1	12/07/2016 19:42
Cobalt	ND	0.00050	1	12/07/2016 19:42
Copper	ND	0.00050	1	12/07/2016 19:42
Iron	ND	0.020	1	12/07/2016 19:42
Lead	ND	0.00050	1	12/07/2016 19:42
Lithium	ND	0.0050	1	12/07/2016 20:54
Magnesium	**0.048**	0.020	1	12/07/2016 19:42
Manganese	ND	0.020	1	12/07/2016 19:42
Mercury	ND	0.000050	1	12/07/2016 19:42
Molybdenum	ND	0.00050	1	12/07/2016 19:42
Nickel	ND	0.00050	1	12/07/2016 19:42
Potassium	**1.1**	0.020	1	12/07/2016 19:42
Selenium	ND	0.00050	1	12/07/2016 19:42
Silver	ND	0.00050	1	12/07/2016 19:42
Sodium	**25**	0.10	1	12/07/2016 19:42
Strontium	ND	0.020	1	12/07/2016 19:42
Thallium	ND	0.00050	1	12/07/2016 19:42
Uranium	ND	0.00050	1	12/07/2016 19:42
Vanadium	ND	0.00050	1	12/07/2016 19:42
Zinc	ND	0.0050	1	12/07/2016 19:42

Analyst(s): BBO, MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2580B-97
Date Prepared:	12/5/16	**Analytical Method:**	SM2580B-97
Project:	Raw Water-Prescreen Testing	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130777**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**510 @ 22.7°C**	±10	1	12/05/2016 16:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130777**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**508 @ 23.6°C**	±10	1	12/05/2016 16:10

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW9040
Date Prepared:	12/5/16	**Analytical Method:**	SW9040
Project:	Raw Water-Prescreen Testing	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130749**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.60**	±0.05	1	12/05/2016 17:21

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130749**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.72**	±0.05	1	12/05/2016 17:27

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500H+B-2000
Date Prepared:	10/13/16	**Analytical Method:**	SM4500H+B-2000
Project:	Raw Water-Prescreen Testing	**Unit:**	pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**WetChem**	**128116**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**6.94**	H	±0.05	1	10/13/2016 20:54

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6010B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-JY**	**130762**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	12/06/2016 17:01

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**130762**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	12/06/2016 17:04

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	RSK175
Date Prepared:	10/17/16	**Analytical Method:**	RSK175
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Dissolved Carbon Dioxide by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**GC26**	**128221**

Analytes	Result	RL	DF	Date Analyzed
Carbon Dioxide	**2900**	250	5	10/17/2016 10:57

Analyst(s): GM

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2510 B-1997
Date Prepared:	12/5/16	**Analytical Method:**	SM2510 B-1997
Project:	Raw Water-Prescreen Testing	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130785**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**212**	10.0	1	12/05/2016 16:20
Total Dissolved Solids (mg/L)	**104**	4.80	1	12/05/2016 16:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130785**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**227**	10.0	1	12/05/2016 16:30
Total Dissolved Solids (mg/L)	**111**	4.80	1	12/05/2016 16:30

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6010B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-JY**	**130763**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**0.47**	0.050	1	12/06/2016 16:17

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**130763**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**0.43**	0.050	1	12/06/2016 16:20

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130826**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/06/2016 15:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130826**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/06/2016 15:15

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2540 C-1997
Date Prepared:	10/13/16	**Analytical Method:**	SM2540 C-1997
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Dissolved Solids

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**WetChem**	**128101**

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**88.0**	10.0	1	10/13/2016 20:05

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E351.2
Date Prepared:	12/2/16	**Analytical Method:**	E351.2
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130734**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.44**	0.30	1	12/05/2016 16:16

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130734**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.80**	0.30	1	12/05/2016 16:12

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2130 B-2001
Date Prepared:	12/5/16	**Analytical Method:**	SM2130 B-2001
Project:	Raw Water-Prescreen Testing	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130765**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.122**	0.100	1	12/05/2016 14:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130765**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.133**	0.100	1	12/05/2016 14:40

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E415.3
Date Prepared:	12/5/16	**Analytical Method:**	E415.3
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_CNS**	**130741**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	12/05/2016 14:41

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**130741**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	12/05/2016 14:53

Analyst(s): TD

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E415.3
Date Prepared:	12/5/16	**Analytical Method:**	E415.3
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_CNS**	**130753**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	12/05/2016 16:43

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**130753**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	12/05/2016 16:51

Analyst(s): GM

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130793
Date Analyzed:	12/2/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130793

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0242	0.00020	0.025	-	97	90-110

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/1/16	**BatchID:**	130573
Date Analyzed:	12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130573 1611D01-002AMS/MSD

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.964	0.10	1	-	96	85-115
Chloride	ND	0.975	0.10	1	-	97	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.981	0.10	1	-	98	85-115
Nitrate as $NO3^-$	ND	4.35	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.00	0.10	1	-	100	85-115
Nitrite as $NO2^-$	ND	3.28	0.33	3.3	-	100	85-115
Sulfate	ND	0.977	0.10	1	-	98	85-115
Surrogate Recovery							
Formate	0.102	0.102		0.10	102	102	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chloride	NR	NR	1	55	NR	NR	85-115	NR	15
Fluoride	1.20	1.19	1	0.14	105	105	85-115	0	15
Nitrate as N	2.19	2.20	1	1.173	102	102	85-115	0	15
Nitrate as $NO3^-$	9.71	9.73	4.4	5.194	103	103	85-115	0	15
Nitrite as N	0.898	1.00	1	ND	90	100	85-115	11.1	15
Nitrite as $NO2^-$	2.95	3.30	3.3	ND	89	100	85-115	11.1	15
Sulfate	NR	NR	1	7.3	NR	NR	85-115	NR	15
Surrogate Recovery									
Formate	0.104	0.104	0.10		104	104	85-115	0	10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128179
Date Analyzed:	10/14/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128179 1610605-002AMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfate	ND	1.02	0.10	1	-	102	85-115
Surrogate Recovery							
Formate	0.106	0.110		0.10	106	110	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfate	42.9	42.8	1	42	109	106	85-115	0.0759	15
Surrogate Recovery									
Formate	0.115	0.115	0.10		115	115	85-115	0	10

_______ QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/1/16 - 12/2/16	**BatchID:**	130680
Date Analyzed:	12/1/16 - 12/2/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130680 1611D01-001AMS/MSD

QC Summary Report for E314.0 (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	11.3	4.0	10	-	113	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	9.76	10.3	10	ND	98	103	80-120	5.19	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	10.7	0.50	10	-	107	54-140
Benzene	ND	10.6	0.50	10	-	106	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	40.5	2.0	40	-	101	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.8	0.50	10	-	108	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	11.1	0.50	10	-	111	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.6	0.50	10	-	106	66-125
1,1-Dichloroethene	ND	11.6	0.50	10	-	116	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	10.4	0.50	10	-	104	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	11.3	0.50	10	-	113	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	11.6	0.50	10	-	116	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.9	0.50	10	-	109	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	11.9	0.50	10	-	119	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.6	25.5		25	102	102	70-130
Toluene-d8	24.7	26.0		25	99	104	70-130
4-BFB	2.73	2.49		2.5	109	100	70-130

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130841
Date Analyzed:	12/6/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130841 1612121-001HMS/MSD

QC Summary Report for E350.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.23	0.10	4	-	106	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	4.40	4.54	4	0.39	100	104	88-113	3.35	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130761
Date Analyzed:	12/5/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	Raw Water-Prescreen Testing		

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1612080-001A	270	1	264	1	2.10	<20

Quality Control Report

Client: Todd Groundwater
Date Prepared: 10/14/16
Date Analyzed: 10/14/16
Instrument: Titrino
Matrix: Water
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 128134
Extraction Method: SM2320 B-1997
Analytical Method: SM2320 B-1997

QC Summary Report for Alkalinity

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-001A	Total Alkalinity	mg $CaCO_3$/L	25.3	1	26.4	1	4.26	<20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	49.7	0.50	50	-	99	85-115
Arsenic	ND	51.8	0.50	50	-	104	85-115
Barium	ND	522	5.0	500	-	104	85-115
Beryllium	ND	52.5	0.50	50	-	105	85-115
Cadmium	ND	52.2	0.25	50	-	104	85-115
Chromium	ND	51.5	0.50	50	-	103	85-115
Cobalt	ND	52.2	0.50	50	-	104	85-115
Copper	ND	52.4	2.0	50	-	105	85-115
Lead	ND	50.7	0.50	50	-	101	85-115
Mercury	ND	1.24	0.050	1.25	-	99	85-115
Molybdenum	ND	50.4	0.50	50	-	101	85-115
Nickel	ND	51.7	0.50	50	-	103	85-115
Selenium	ND	51.6	0.50	50	-	103	85-115
Silver	ND	50.5	0.19	50	-	101	85-115
Thallium	ND	51.7	0.50	50	-	103	85-115
Vanadium	ND	50.8	0.50	50	-	102	85-115
Zinc	ND	520	15	500	-	104	85-115
Surrogate Recovery							
Terbium	769	778		750	103	104	70-130

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	53.9	52.8	50	ND<10	108	106	75-125	2.06	20
Arsenic	55.2	54.4	50	ND<10	110	109	75-125	1.50	20
Barium	1430	1440	500	910	104	105	75-125	0.488	20
Beryllium	54.3	55.0	50	ND<10	109	110	75-125	1.28	20
Cadmium	55.8	55.9	50	ND<5.0	109	109	75-125	0	20
Chromium	69.9	70.1	50	18.14	103	104	75-125	0.343	20
Cobalt	54.9	54.7	50	ND<10	103	103	75-125	0	20
Copper	201	208	50	148.4	106	120	75-125	3.32	20
Lead	78.3	78.6	50	25.60	105	106	75-125	0.383	20
Mercury	1.32	1.22	1.25	ND<0.50	106	98	75-125	7.85	20
Molybdenum	62.0	61.9	50	11	101	101	75-125	0	20
Nickel	68.4	69.2	50	15.63	106	107	75-125	1.16	20
Selenium	19.5	19.5	50	ND<10	39,F10	39,F10	75-125	0	20
Silver	51.3	51.3	50	ND<3.8	103	103	75-125	0	20
Thallium	51.7	51.9	50	ND<10	103	104	75-125	0.463	20
Vanadium	58.0	58.2	50	ND<10	104	104	75-125	0	20
Zinc	1330	1350	500	795.4	107	110	75-125	1.39	20
Surrogate Recovery									
Terbium	812	806	750		108	107	70-130	0.692	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<50	ND<10	-	-
Arsenic	ND<50	ND<10	-	-
Barium	901	910	0.989	20
Beryllium	ND<50	ND<10	-	-
Cadmium	ND<25	ND<5.0	-	-
Chromium	ND<50	18.14	-	-
Cobalt	ND<50	ND<10	-	-
Copper	ND<200	148.4	-	-
Lead	ND<50	25.60	-	-
Mercury	ND<2.5	ND<0.50	-	-
Molybdenum	ND<50	11	-	-
Nickel	ND<50	15.63	-	-
Selenium	ND<50	ND<10	-	-

(Cont.)

Quality Control Report

Client: Todd Groundwater
Date Prepared: 10/13/16
Date Analyzed: 10/14/16
Instrument: ICP-MS3
Matrix: Water
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 128098
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-128098
1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<19	ND<3.8	-	-
Thallium	ND<50	ND<10	-	-
Vanadium	ND<50	ND<10	-	-
Zinc	ND<1500	795.4	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130739
Date Analyzed:	12/6/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130739

QC Summary Report for SM4500-Cl G (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	0.920	0.040	1	-	92	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128107
Date Analyzed:	10/13/16	**Extraction Method:**	SM4500-Cl E
Instrument:	Titrino	**Analytical Method:**	SM4500-Cl E
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-128107

QC Summary Report for SM4500-Cl E

Analyte	MB Result	RL			
Total Chlorine	ND	0.040	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Chlorine	0.203	0.203	0.20	102	101	80-120	0.197	20

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/5/16
Instrument: WetChem
Matrix: Leachate
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130754
Extraction Method: SM4500-O G-2001
Analytical Method: SM4500-O G-2001

QC Summary Report for Dissolved Oxygen

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610568-004A	Dissolved Oxygen	mg DO/L @ °C	9.07 @ 21.2°C	1	9.06 @ 21.2°C	1	0.01	0.05

Quality Control Report

Client: Todd Groundwater
Date Prepared: 10/13/16
Date Analyzed: 10/14/16
Instrument: ICP-MS3
Matrix: Water
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 128098
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-128098
1610547-001AMS/MSD

QC Summary Report for Hardness

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Calcium	ND	5120	100	5000	-	102	85-115
Magnesium	ND	5230	20	5000	-	105	85-115
Surrogate Recovery							
Terbium	769	778		750	103	104	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Calcium	45,600	46,500	5000	40,000	111	127,F13	75-125	1.78	20
Magnesium	22,100	22,200	5000	16,000	117	117	75-125	0	20
Surrogate Recovery									
Terbium	812	806	750		108	107	70-130	0.692	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Calcium	40,900	40,000	2.25	20
Magnesium	16,700	16,000	4.38	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/7/16
Instrument: ICP-MS2, ICP-MS3
Matrix: Soil
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130764
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-130764

QC Summary Report for Metals (Leachate)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	ND	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	ND	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	ND	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	ND	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.015	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130764
Date Analyzed:	12/7/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130764

QC Summary Report for Metals (Leachate)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.545	0.555	0.50	109	111	75-125	1.82	20
Antimony	0.0515	0.0514	0.050	103	103	75-125	0	20
Arsenic	0.0542	0.0544	0.050	108	109	75-125	0.424	20
Barium	0.542	0.539	0.50	108	108	75-125	0	20
Beryllium	0.0526	0.0540	0.050	105	108	75-125	2.66	20
Cadmium	0.0530	0.0537	0.050	106	107	75-125	1.29	20
Calcium	5.42	5.48	5	108	110	75-125	1.25	20
Chromium	0.0538	0.0537	0.050	108	107	75-125	0.112	20
Cobalt	0.0537	0.0544	0.050	107	109	75-125	1.35	20
Copper	0.0540	0.0542	0.050	108	108	75-125	0	20
Iron	5.36	5.41	5	107	108	75-125	0.817	20
Lead	0.0545	0.0548	0.050	109	110	75-125	0.677	20
Lithium	0.0532	0.0534	0.050	106	107	75-125	0.300	20
Magnesium	5.42	5.54	5	108	111	75-125	2.08	20
Manganese	5.41	5.49	5	108	110	75-125	1.47	20
Mercury	0.00134	0.00132	0.0012	107	106	75-125	1.35	20
Molybdenum	0.0536	0.0536	0.050	107	107	75-125	0	20
Nickel	0.0531	0.0534	0.050	106	107	75-125	0.507	20
Potassium	5.35	5.47	5	107	109	75-125	2.18	20
Selenium	0.0535	0.0548	0.050	107	110	75-125	2.44	20
Silver	0.0510	0.0505	0.050	102	101	75-125	0.828	20
Sodium	5.42	5.47	5	108	109	75-125	0.937	20
Strontium	0.537	0.537	0.50	107	107	75-125	0	20
Thallium	0.0511	0.0518	0.050	102	104	75-125	1.40	20
Uranium	0.0502	0.0508	0.050	100	102	75-125	1.19	20
Vanadium	0.0533	0.0537	0.050	107	107	75-125	0	20
Zinc	0.533	0.536	0.50	107	107	75-125	0	20

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/5/16
Instrument: WetChem
Matrix: Leachate
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130777
Extraction Method: SM2580B-97
Analytical Method: SM2580B-97

QC Summary Report for ORP (MAI)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	ORP	±, mV vs. NHE	510 @ 22.7°C	1	498 @ 23.4°C	1	2.47	<10

_______ QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130749
Date Analyzed:	12/5/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	Raw Water-Prescreen Testing		

QC Summary Report for pH (Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610568-004A	7.60	1	7.57	1	0.03	0.05
1610568-005A	7.72	1	7.71	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128116
Date Analyzed:	10/13/16	**Extraction Method:**	SM4500H+B-2000
Instrument:	WetChem	**Analytical Method:**	SM4500H+B-2000
Matrix:	Water		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for pH

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610520-001C	pH	±, pH units @ 25°C	7.56	1	7.56	1	0	0.1

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130762
Date Analyzed:	12/6/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130762

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	0.958	0.995	1	96	100	80-120	3.86	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/17/16	**BatchID:**	128221
Date Analyzed:	10/17/16	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128221

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Carbon Dioxide	ND	167	50	187.2	-	89	70-130

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130785
Date Analyzed:	12/5/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	Raw Water-Prescreen Testing		

QC Summary Report for SM2510B (SC, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	212	1	210	1	0.76	<2
1610568-005A	227	1	226	1	0.13	<2

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130763
Date Analyzed:	12/6/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130763

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.491	0.492	0.50	98	98	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130826
Date Analyzed:	12/6/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130826 1610568-004AMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.474	0.050	0.50	-	95	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.470	0.469	0.50	ND	94	94	80-120	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128101
Date Analyzed:	10/13/16	**Extraction Method:**	SM2540 C-1997
Instrument:	WetChem	**Analytical Method:**	SM2540 C-1997
Matrix:	Water		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for Total Dissolved Solids

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610520-002C	Total Dissolved Solids	mg/L	309	1	334	2	7.78	<20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130734
Date Analyzed:	12/6/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130734 1612032-001AMS/MSD

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	12.0	0.30	12	-	100	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	12.0	13.6	12	1.2	90	104	50-132	12.6	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130765
Date Analyzed:	12/5/16	**Extraction Method:**	SM2130 B-2001
Instrument:	WetChem	**Analytical Method:**	SM2130 B-2001
Matrix:	Leachate	**Unit:**	NTU
Project:	Raw Water-Prescreen Testing		

QC Summary Report for SM2130B (Turbidity)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	0.122	1	0.130	1	6.35	<10
1612154-001B	13.1	1	13.0	1	0.77	<10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130741
Date Analyzed:	12/5/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130741

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	RL			
Dissolved Organic Carbon	ND	0.70	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Dissolved Organic Carbon	50.1	50.2	50	100	100	80-120	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130753
Date Analyzed:	12/5/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130753

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	37.8	3.7	36.7	-	103	80-120

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1610568 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: Raw Water-Prescreen Testing

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **1 day;**

Date Received: **10/13/2016**
Date Logged: **10/13/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1610568-001	Raw Water	Water	10/13/2016 00:00	☐	A	A	A	A	A	A						

Test Legend:

1	Alk_W	2	CAM17MS_TTLC_W	3	Chlorine_Total_W	4	HARDMS_W
5	PH_W	6	TDS_W	7		8	
9		10		11		12	

Prepared by: Briana Cutino

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: Raw Water-Prescreen Testing

Comments:

Work Order: 1610568
QC Level: LEVEL 2
Date Logged: 10/13/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1610568-001A	Raw Water	Water	SM2540C (TDS)	1	1G HDPE	☐	10/13/2016	1 day	None	☐	
			SM4500H+B (pH)			☐		1 day	None	☐	
			SM2340B (Hardness)			☐		1 day	None	☐	
			SM4500-Cl E (Total Chlorine)			☐		1 day	None	☐	
			E200.8 (CAM 17)			☐		1 day	None	☐	
			SM2320B (Alkalinity)			☐		1 day	None	☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1610568

5

McCAMPBELL ANALYTICAL, INC.

RUSH

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	●	2 Day Rush		3 Day Rush		STD		Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: Bill Motzer Bill To: Todd Groundwater
Company: Todd Groundwater
Email: wmotzer@toddgroundwater.com
Alt Email: elin@toddgroundwater.com; ctaylor@toddgroundwater.com Tele:
Project Name/#: Raw Water - Prescreen Testing
Project Location: Internal Testing PO #
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	Total Dissolved Solids	Total Chlorine	Alkalinity	Hardness	pH	CAM17 metals													
Raw Water	10/13/16			Water		●	●	●	●	●	●													

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	10/13	18:50		10/13	18:50

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page ___ of ___

Sample Receipt Checklist

Client Name:	**Todd Groundwater**	Date and Time Received:	**10/13/2016 18:50**
Project Name:	**Raw Water-Prescreen Testing**	Date Logged:	**10/13/2016**
		Received by:	Rosa Venegas
WorkOrder №:	**1610568** Matrix: Water	Logged by:	Briana Cutino
Carrier:	Benjamin Yslas (MAI Courier)		

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☐	No ☑	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 24.3°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☑	NA ☐
Samples Received on Ice?	Yes ☐	No ☑	

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

From:	Edwin Lin <ELin@toddgroundwater.com>
Sent:	Tuesday, November 08, 2016 9:38 AM
To:	Griselda Martinez; 'Rosa Venegas'
Cc:	'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject:	RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. - Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

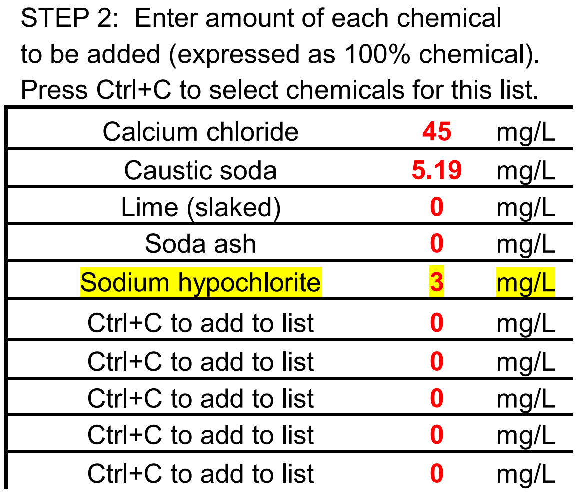
rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?



STEP 2: Enter amount of each chemical to be added (expressed as 100% chemical).
Press Ctrl+C to select chemicals for this list.

Calcium chloride	45	mg/L
Caustic soda	5.19	mg/L
Lime (slaked)	0	mg/L
Soda ash	0	mg/L
Sodium hypochlorite	3	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1610568 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: Raw Water-Prescreen Testing

Project Received: 10/13/2016

Analytical Report reviewed & approved for release on 10/19/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: Raw Water-Prescreen Testing
WorkOrder: 1610568

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

S	surrogate spike recovery outside accepted recovery limits
c1	surrogate recovery outside of the control limits due to the dilution of the sample.

Case Narrative

Client: Todd Groundwater
Project: Raw Water-Prescreen Testing
Work Order: 1610568
December 09, 2016

Langelier Index by SM2330B Calculations at 23 degrees C:

Permeate Chem Dose 1; 1610568-004A
Langelier Index = -1.118594276

Permeate Chem Dose 2; 1610568-005A
Langelier Index = -0.887624665

CA ELAP 1644 ♦ NELAP 4033ORELAP

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1610568
Project: Raw Water-Prescreen Testing December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	**Chemical dose 1**	**Chemical dose 2**
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**CaCl2 and NaOH**	**CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**Measured Value: CaCl2 and NaOH**	**Measured Value: CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Case Narrative

Client: Todd Groundwater **Work Order:** 1610568
Project: Raw Water-Prescreen Testing December 09, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 2: 35
Sonic 3: 10, 15

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.

3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.

4. Leachate from each vial was filtered thru 0.45 micron filter.

5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

_______ Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E218.6
Date Prepared:	12/5/16	**Analytical Method:**	E218.6
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC2**	**130793**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.00020	1	12/02/2016 21:26

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC2**	**130793**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.00020	1	12/02/2016 21:48

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E300.1
Date Prepared:	12/1/16	**Analytical Method:**	E300.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC3**	**130573**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	12/03/2016 01:40
Chloride	**40**	5.0	50	12/01/2016 19:19
Fluoride	ND	0.10	1	12/03/2016 01:40
Nitrate as N	**2.3**	0.10	1	12/03/2016 01:40
Nitrate as $NO3^-$	**10**	0.45	1	12/03/2016 01:40
Nitrite as N	ND	0.10	1	12/03/2016 01:40
Nitrite as $NO2^-$	ND	0.33	1	12/03/2016 01:40
Sulfate	**0.29**	0.10	1	12/03/2016 01:40

Surrogates	REC (%)	Qualifiers	Limits	
	0	S	90-115	12/03/2016 01:40

Analyst(s): AO

Analytical Comments: c1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC3**	**130573**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	12/03/2016 02:18
Chloride	**40**	5.0	50	12/01/2016 19:57
Fluoride	ND	0.10	1	12/03/2016 02:18
Nitrate as N	**2.3**	0.10	1	12/03/2016 02:18
Nitrate as $NO3^-$	**10**	0.45	1	12/03/2016 02:18
Nitrite as N	ND	0.10	1	12/03/2016 02:18
Nitrite as $NO2^-$	ND	0.33	1	12/03/2016 02:18
Sulfate	**0.31**	0.10	1	12/03/2016 02:18

Surrogates	REC (%)	Qualifiers	Limits	
	0	S	90-115	12/03/2016 02:18

Analyst(s): AO

Analytical Comments: c1

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E300.1
Date Prepared:	10/17/16	**Analytical Method:**	E300.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**IC3**	**128179**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**0.31**	0.10	1	10/17/2016 14:23

Surrogates	REC (%)	Limits	Date Analyzed
Formate	109	85-115	10/17/2016 14:23

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E314.0
Date Prepared:	12/2/16	**Analytical Method:**	E314.0
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**IC1**	**130680**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	12/02/2016 01:11

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**IC1**	**130680**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	12/02/2016 01:51

Analyst(s): AO

Analytical Report

Client: Todd Groundwater
Date Received: 10/13/16 18:50
Date Prepared: 10/17/16
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	10/17/2016 12:14
tert-Amyl methyl ether (TAME)	ND	0.50	1	10/17/2016 12:14
Benzene	ND	0.50	1	10/17/2016 12:14
Bromobenzene	ND	0.50	1	10/17/2016 12:14
Bromochloromethane	ND	0.50	1	10/17/2016 12:14
Bromodichloromethane	ND	0.50	1	10/17/2016 12:14
Bromoform	ND	0.50	1	10/17/2016 12:14
Bromomethane	ND	0.50	1	10/17/2016 12:14
2-Butanone (MEK)	ND	2.0	1	10/17/2016 12:14
t-Butyl alcohol (TBA)	ND	2.0	1	10/17/2016 12:14
n-Butyl benzene	ND	0.50	1	10/17/2016 12:14
sec-Butyl benzene	ND	0.50	1	10/17/2016 12:14
tert-Butyl benzene	ND	0.50	1	10/17/2016 12:14
Carbon Disulfide	ND	0.50	1	10/17/2016 12:14
Carbon Tetrachloride	ND	0.50	1	10/17/2016 12:14
Chlorobenzene	ND	0.50	1	10/17/2016 12:14
Chloroethane	ND	0.50	1	10/17/2016 12:14
Chloroform	**0.73**	0.50	1	10/17/2016 12:14
Chloromethane	ND	0.50	1	10/17/2016 12:14
2-Chlorotoluene	ND	0.50	1	10/17/2016 12:14
4-Chlorotoluene	ND	0.50	1	10/17/2016 12:14
Dibromochloromethane	ND	0.50	1	10/17/2016 12:14
1,2-Dibromo-3-chloropropane	ND	0.20	1	10/17/2016 12:14
1,2-Dibromoethane (EDB)	ND	0.50	1	10/17/2016 12:14
Dibromomethane	ND	0.50	1	10/17/2016 12:14
1,2-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,3-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,4-Dichlorobenzene	ND	0.50	1	10/17/2016 12:14
Dichlorodifluoromethane	ND	0.50	1	10/17/2016 12:14
1,1-Dichloroethane	ND	0.50	1	10/17/2016 12:14
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	10/17/2016 12:14
1,1-Dichloroethene	ND	0.50	1	10/17/2016 12:14
cis-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:14
trans-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:14
1,2-Dichloropropane	ND	0.50	1	10/17/2016 12:14
1,3-Dichloropropane	ND	0.50	1	10/17/2016 12:14
2,2-Dichloropropane	ND	0.50	1	10/17/2016 12:14

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	10/17/2016 12:14
cis-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:14
trans-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:14
Diisopropyl ether (DIPE)	ND	0.50	1	10/17/2016 12:14
Ethylbenzene	ND	0.50	1	10/17/2016 12:14
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	10/17/2016 12:14
Freon 113	ND	0.50	1	10/17/2016 12:14
Hexachlorobutadiene	ND	0.50	1	10/17/2016 12:14
Hexachloroethane	ND	0.50	1	10/17/2016 12:14
2-Hexanone	ND	0.50	1	10/17/2016 12:14
Isopropylbenzene	ND	0.50	1	10/17/2016 12:14
4-Isopropyl toluene	ND	0.50	1	10/17/2016 12:14
Methyl-t-butyl ether (MTBE)	ND	0.50	1	10/17/2016 12:14
Methylene chloride	ND	0.50	1	10/17/2016 12:14
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	10/17/2016 12:14
Naphthalene	ND	0.50	1	10/17/2016 12:14
n-Propyl benzene	ND	0.50	1	10/17/2016 12:14
Styrene	ND	0.50	1	10/17/2016 12:14
1,1,1,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:14
1,1,2,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:14
Tetrachloroethene	ND	0.50	1	10/17/2016 12:14
Toluene	ND	0.50	1	10/17/2016 12:14
1,2,3-Trichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,2,4-Trichlorobenzene	ND	0.50	1	10/17/2016 12:14
1,1,1-Trichloroethane	ND	0.50	1	10/17/2016 12:14
1,1,2-Trichloroethane	ND	0.50	1	10/17/2016 12:14
Trichloroethene	ND	0.50	1	10/17/2016 12:14
Trichlorofluoromethane	ND	0.50	1	10/17/2016 12:14
1,2,3-Trichloropropane	ND	0.50	1	10/17/2016 12:14
1,2,4-Trimethylbenzene	ND	0.50	1	10/17/2016 12:14
1,3,5-Trimethylbenzene	ND	0.50	1	10/17/2016 12:14
Vinyl Chloride	ND	0.50	1	10/17/2016 12:14
Xylenes, Total	ND	0.50	1	10/17/2016 12:14

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
GWDISS_AOP_EFF_VOA	**1610568-002A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	94	70-130		10/17/2016 12:14
Toluene-d8	91	70-130		10/17/2016 12:14
4-BFB	81	70-130		10/17/2016 12:14

Analyst(s): MW

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	10/17/2016 12:54
tert-Amyl methyl ether (TAME)	ND	0.50	1	10/17/2016 12:54
Benzene	ND	0.50	1	10/17/2016 12:54
Bromobenzene	ND	0.50	1	10/17/2016 12:54
Bromochloromethane	ND	0.50	1	10/17/2016 12:54
Bromodichloromethane	ND	0.50	1	10/17/2016 12:54
Bromoform	ND	0.50	1	10/17/2016 12:54
Bromomethane	ND	0.50	1	10/17/2016 12:54
2-Butanone (MEK)	ND	2.0	1	10/17/2016 12:54
t-Butyl alcohol (TBA)	ND	2.0	1	10/17/2016 12:54
n-Butyl benzene	ND	0.50	1	10/17/2016 12:54
sec-Butyl benzene	ND	0.50	1	10/17/2016 12:54
tert-Butyl benzene	ND	0.50	1	10/17/2016 12:54
Carbon Disulfide	ND	0.50	1	10/17/2016 12:54
Carbon Tetrachloride	ND	0.50	1	10/17/2016 12:54
Chlorobenzene	ND	0.50	1	10/17/2016 12:54
Chloroethane	ND	0.50	1	10/17/2016 12:54
Chloroform	ND	0.50	1	10/17/2016 12:54
Chloromethane	ND	0.50	1	10/17/2016 12:54
2-Chlorotoluene	ND	0.50	1	10/17/2016 12:54
4-Chlorotoluene	ND	0.50	1	10/17/2016 12:54
Dibromochloromethane	ND	0.50	1	10/17/2016 12:54
1,2-Dibromo-3-chloropropane	ND	0.20	1	10/17/2016 12:54
1,2-Dibromoethane (EDB)	ND	0.50	1	10/17/2016 12:54
Dibromomethane	ND	0.50	1	10/17/2016 12:54
1,2-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,3-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,4-Dichlorobenzene	ND	0.50	1	10/17/2016 12:54
Dichlorodifluoromethane	ND	0.50	1	10/17/2016 12:54
1,1-Dichloroethane	ND	0.50	1	10/17/2016 12:54
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	10/17/2016 12:54
1,1-Dichloroethene	ND	0.50	1	10/17/2016 12:54
cis-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:54
trans-1,2-Dichloroethene	ND	0.50	1	10/17/2016 12:54
1,2-Dichloropropane	ND	0.50	1	10/17/2016 12:54
1,3-Dichloropropane	ND	0.50	1	10/17/2016 12:54
2,2-Dichloropropane	ND	0.50	1	10/17/2016 12:54

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	10/17/2016 12:54
cis-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:54
trans-1,3-Dichloropropene	ND	0.50	1	10/17/2016 12:54
Diisopropyl ether (DIPE)	ND	0.50	1	10/17/2016 12:54
Ethylbenzene	ND	0.50	1	10/17/2016 12:54
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	10/17/2016 12:54
Freon 113	ND	0.50	1	10/17/2016 12:54
Hexachlorobutadiene	ND	0.50	1	10/17/2016 12:54
Hexachloroethane	ND	0.50	1	10/17/2016 12:54
2-Hexanone	ND	0.50	1	10/17/2016 12:54
Isopropylbenzene	ND	0.50	1	10/17/2016 12:54
4-Isopropyl toluene	ND	0.50	1	10/17/2016 12:54
Methyl-t-butyl ether (MTBE)	ND	0.50	1	10/17/2016 12:54
Methylene chloride	ND	0.50	1	10/17/2016 12:54
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	10/17/2016 12:54
Naphthalene	ND	0.50	1	10/17/2016 12:54
n-Propyl benzene	ND	0.50	1	10/17/2016 12:54
Styrene	ND	0.50	1	10/17/2016 12:54
1,1,1,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:54
1,1,2,2-Tetrachloroethane	ND	0.50	1	10/17/2016 12:54
Tetrachloroethene	ND	0.50	1	10/17/2016 12:54
Toluene	ND	0.50	1	10/17/2016 12:54
1,2,3-Trichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,2,4-Trichlorobenzene	ND	0.50	1	10/17/2016 12:54
1,1,1-Trichloroethane	ND	0.50	1	10/17/2016 12:54
1,1,2-Trichloroethane	ND	0.50	1	10/17/2016 12:54
Trichloroethene	ND	0.50	1	10/17/2016 12:54
Trichlorofluoromethane	ND	0.50	1	10/17/2016 12:54
1,2,3-Trichloropropane	ND	0.50	1	10/17/2016 12:54
1,2,4-Trimethylbenzene	ND	0.50	1	10/17/2016 12:54
1,3,5-Trimethylbenzene	ND	0.50	1	10/17/2016 12:54
Vinyl Chloride	ND	0.50	1	10/17/2016 12:54
Xylenes, Total	ND	0.50	1	10/17/2016 12:54

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW5030B
Date Prepared:	10/17/16	**Analytical Method:**	SW8260B
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Trip Blank	**1610568-003A**	**Water**	**10/13/2016 14:40**	**GC16**	**128170**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	94	70-130		10/17/2016 12:54
Toluene-d8	90	70-130		10/17/2016 12:54
4-BFB	79	70-130		10/17/2016 12:54

Analyst(s): MW

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E350.1
Date Prepared:	12/6/16	**Analytical Method:**	E350.1
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130841**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.40**	0.10	1	12/06/2016 14:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130841**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.49**	0.10	1	12/06/2016 14:51

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2320 B-1997
Date Prepared:	12/5/16	**Analytical Method:**	SM2320 B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**Titrino**	**130761**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**30.1**	1.00	1	12/05/2016 15:28
Carbonate	ND	1.00	1	12/05/2016 15:28
Bicarbonate	**30.1**	1.00	1	12/05/2016 15:28
Hydroxide	ND	1.00	1	12/05/2016 15:28

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**Titrino**	**130761**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**39.2**	1.00	1	12/05/2016 15:30
Carbonate	ND	1.00	1	12/05/2016 15:30
Bicarbonate	**39.2**	1.00	1	12/05/2016 15:30
Hydroxide	ND	1.00	1	12/05/2016 15:30

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2320 B-1997
Date Prepared:	10/14/16	**Analytical Method:**	SM2320 B-1997
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**Titrino**	**128134**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**25.3**	1.00	1	10/14/2016 09:33
Carbonate	ND	1.00	1	10/14/2016 09:33
Bicarbonate	**25.3**	1.00	1	10/14/2016 09:33
Hydroxide	ND	1.00	1	10/14/2016 09:33

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E200.8
Date Prepared:	10/14/16	**Analytical Method:**	E200.8
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**ICP-MS3**	**128098**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	10/17/2016 10:49
Arsenic	ND	0.50	1	10/17/2016 10:49
Barium	ND	5.0	1	10/17/2016 10:49
Beryllium	ND	0.50	1	10/17/2016 10:49
Cadmium	ND	0.25	1	10/17/2016 10:49
Chromium	ND	0.50	1	10/17/2016 10:49
Cobalt	ND	0.50	1	10/17/2016 10:49
Copper	ND	2.0	1	10/17/2016 10:49
Lead	ND	0.50	1	10/17/2016 10:49
Mercury	ND	0.050	1	10/17/2016 10:49
Molybdenum	ND	0.50	1	10/17/2016 10:49
Nickel	ND	0.50	1	10/17/2016 10:49
Selenium	ND	0.50	1	10/17/2016 10:49
Silver	ND	0.19	1	10/17/2016 10:49
Thallium	ND	0.50	1	10/17/2016 10:49
Vanadium	ND	0.50	1	10/17/2016 10:49
Zinc	ND	15	1	10/17/2016 10:49

Surrogates	REC (%)	Limits	
Terbium	106	70-130	10/17/2016 10:49

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-Cl G
Date Prepared:	12/6/16	**Analytical Method:**	SM4500-Cl G
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130739**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	12/06/2016 14:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130739**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	**0.17**	0.040	1	12/06/2016 14:19

Analyst(s): BAS

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-Cl E
Date Prepared:	10/13/16	**Analytical Method:**	SM4500-Cl E
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Chlorine as Cl_2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**Titrino**	**128107**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	**1.5**	H	0.40	10	10/13/2016 20:17

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	12/5/16	**Analytical Method:**	SM4500-O G-2001
Project:	Raw Water-Prescreen Testing	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130754**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**9.07 @ 21.2°C**	1.00	1	12/05/2016 13:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130754**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.83 @ 21.4°C**	1.00	1	12/05/2016 13:50

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E200.8
Date Prepared:	10/14/16	**Analytical Method:**	E200.8
Project:	Raw Water-Prescreen Testing	**Unit:**	mg $CaCO_3$/L

Hardness by SM2340B Calculation

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**ICP-MS3**	**128098**

Analytes	Result	RL	DF	Date Analyzed
Hardness	**0.165**	0.0824	1	10/17/2016 10:49
Hardness, Calcium (As CaCO3)	ND	0.250	1	10/17/2016 10:49

Surrogates	REC (%)	Limits	
Terbium	106	70-130	10/17/2016 10:49

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6020
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-MS2**	**130764**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	0.050	1	12/07/2016 19:36
Antimony	ND	0.00050	1	12/07/2016 19:36
Arsenic	ND	0.00050	1	12/07/2016 19:36
Barium	ND	0.0050	1	12/07/2016 19:36
Beryllium	ND	0.00050	1	12/07/2016 19:36
Cadmium	ND	0.00025	1	12/07/2016 19:36
Calcium	**19**	0.10	1	12/07/2016 19:36
Chromium	ND	0.00050	1	12/07/2016 19:36
Cobalt	ND	0.00050	1	12/07/2016 19:36
Copper	ND	0.00050	1	12/07/2016 19:36
Iron	ND	0.020	1	12/07/2016 19:36
Lead	ND	0.00050	1	12/07/2016 19:36
Lithium	ND	0.0050	1	12/07/2016 20:48
Magnesium	**0.048**	0.020	1	12/07/2016 19:36
Manganese	ND	0.020	1	12/07/2016 19:36
Mercury	ND	0.000050	1	12/07/2016 19:36
Molybdenum	ND	0.00050	1	12/07/2016 19:36
Nickel	ND	0.00050	1	12/07/2016 19:36
Potassium	**1.1**	0.020	1	12/07/2016 19:36
Selenium	ND	0.00050	1	12/07/2016 19:36
Silver	ND	0.00050	1	12/07/2016 19:36
Sodium	**22**	0.10	1	12/07/2016 19:36
Strontium	ND	0.020	1	12/07/2016 19:36
Thallium	ND	0.00050	1	12/07/2016 19:36
Uranium	ND	0.00050	1	12/07/2016 19:36
Vanadium	ND	0.00050	1	12/07/2016 19:36
Zinc	ND	0.0050	1	12/07/2016 19:36

Analyst(s): BBO, MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6020
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-MS2**	**130764**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	0.050	1	12/07/2016 19:42
Antimony	ND	0.00050	1	12/07/2016 19:42
Arsenic	ND	0.00050	1	12/07/2016 19:42
Barium	ND	0.0050	1	12/07/2016 19:42
Beryllium	ND	0.00050	1	12/07/2016 19:42
Cadmium	ND	0.00025	1	12/07/2016 19:42
Calcium	**19**	0.10	1	12/07/2016 19:42
Chromium	ND	0.00050	1	12/07/2016 19:42
Cobalt	ND	0.00050	1	12/07/2016 19:42
Copper	ND	0.00050	1	12/07/2016 19:42
Iron	ND	0.020	1	12/07/2016 19:42
Lead	ND	0.00050	1	12/07/2016 19:42
Lithium	ND	0.0050	1	12/07/2016 20:54
Magnesium	**0.048**	0.020	1	12/07/2016 19:42
Manganese	ND	0.020	1	12/07/2016 19:42
Mercury	ND	0.000050	1	12/07/2016 19:42
Molybdenum	ND	0.00050	1	12/07/2016 19:42
Nickel	ND	0.00050	1	12/07/2016 19:42
Potassium	**1.1**	0.020	1	12/07/2016 19:42
Selenium	ND	0.00050	1	12/07/2016 19:42
Silver	ND	0.00050	1	12/07/2016 19:42
Sodium	**25**	0.10	1	12/07/2016 19:42
Strontium	ND	0.020	1	12/07/2016 19:42
Thallium	ND	0.00050	1	12/07/2016 19:42
Uranium	ND	0.00050	1	12/07/2016 19:42
Vanadium	ND	0.00050	1	12/07/2016 19:42
Zinc	ND	0.0050	1	12/07/2016 19:42

Analyst(s): BBO, MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2580B-97
Date Prepared:	12/5/16	**Analytical Method:**	SM2580B-97
Project:	Raw Water-Prescreen Testing	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130777**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**510 @ 22.7°C**	±10	1	12/05/2016 16:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130777**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**508 @ 23.6°C**	±10	1	12/05/2016 16:10

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW9040
Date Prepared:	12/5/16	**Analytical Method:**	SW9040
Project:	Raw Water-Prescreen Testing	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130749**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.60**	±0.05	1	12/05/2016 17:21

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130749**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.72**	±0.05	1	12/05/2016 17:27

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500H+B-2000
Date Prepared:	10/13/16	**Analytical Method:**	SM4500H+B-2000
Project:	Raw Water-Prescreen Testing	**Unit:**	pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**WetChem**	**128116**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**6.94**	H	±0.05	1	10/13/2016 20:54

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6010B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-JY**	**130762**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	12/06/2016 17:01

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**130762**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	12/06/2016 17:04

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	RSK175
Date Prepared:	10/17/16	**Analytical Method:**	RSK175
Project:	Raw Water-Prescreen Testing	**Unit:**	µg/L

Dissolved Carbon Dioxide by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**GC26**	**128221**

Analytes	Result	RL	DF	Date Analyzed
Carbon Dioxide	**2900**	250	5	10/17/2016 10:57

Analyst(s): GM

Angela Rydelius, Lab Manager

Analytical Report

Client: Todd Groundwater
Date Received: 10/13/16 18:50
Date Prepared: 12/5/16
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
Extraction Method: SM2510 B-1997
Analytical Method: SM2510 B-1997
Unit: µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130785**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**212**	10.0	1	12/05/2016 16:20
Total Dissolved Solids (mg/L)	**104**	4.80	1	12/05/2016 16:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130785**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**227**	10.0	1	12/05/2016 16:30
Total Dissolved Solids (mg/L)	**111**	4.80	1	12/05/2016 16:30

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SW1312m
Date Prepared:	12/5/16	**Analytical Method:**	SW6010B
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**ICP-JY**	**130763**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**0.47**	0.050	1	12/06/2016 16:17

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**130763**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**0.43**	0.050	1	12/06/2016 16:20

Analyst(s): BBO

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130826**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/06/2016 15:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**130826**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/06/2016 15:15

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2540 C-1997
Date Prepared:	10/13/16	**Analytical Method:**	SM2540 C-1997
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Dissolved Solids

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Raw Water	**1610568-001A**	**Water**	**10/13/2016**	**WetChem**	**128101**

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**88.0**	10.0	1	10/13/2016 20:05

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E351.2
Date Prepared:	12/2/16	**Analytical Method:**	E351.2
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130734**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.44**	0.30	1	12/05/2016 16:16

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**130734**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.80**	0.30	1	12/05/2016 16:12

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	SM2130 B-2001
Date Prepared:	12/5/16	**Analytical Method:**	SM2130 B-2001
Project:	Raw Water-Prescreen Testing	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WetChem**	**130765**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.122**	0.100	1	12/05/2016 14:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WetChem**	**130765**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.133**	0.100	1	12/05/2016 14:40

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Received:	10/13/16 18:50	**Extraction Method:**	E415.3
Date Prepared:	12/5/16	**Analytical Method:**	E415.3
Project:	Raw Water-Prescreen Testing	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_CNS**	**130741**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	12/05/2016 14:41

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**130741**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	12/05/2016 14:53

Analyst(s): TD

Angela Rydelius, Lab Manager

Analytical Report

Client: Todd Groundwater
Date Received: 10/13/16 18:50
Date Prepared: 12/5/16
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
Extraction Method: E415.3
Analytical Method: E415.3
Unit: mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 1	**1610568-004A**	**Water**	**<Not Provided>**	**WC_CNS**	**130753**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	12/05/2016 16:43

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Permeate Chem Dose 2	**1610568-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**130753**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	12/05/2016 16:51

Analyst(s): GM

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130793
Date Analyzed:	12/2/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130793

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0242	0.00020	0.025	-	97	90-110

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/1/16	**BatchID:**	130573
Date Analyzed:	12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130573 1611D01-002AMS/MSD

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.964	0.10	1	-	96	85-115
Chloride	ND	0.975	0.10	1	-	97	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.981	0.10	1	-	98	85-115
Nitrate as $NO3^-$	ND	4.35	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.00	0.10	1	-	100	85-115
Nitrite as $NO2^-$	ND	3.28	0.33	3.3	-	100	85-115
Sulfate	ND	0.977	0.10	1	-	98	85-115
Surrogate Recovery							
Formate	0.102	0.102		0.10	102	102	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chloride	NR	NR	1	55	NR	NR	85-115	NR	15
Fluoride	1.20	1.19	1	0.14	105	105	85-115	0	15
Nitrate as N	2.19	2.20	1	1.173	102	102	85-115	0	15
Nitrate as $NO3^-$	9.71	9.73	4.4	5.194	103	103	85-115	0	15
Nitrite as N	0.898	1.00	1	ND	90	100	85-115	11.1	15
Nitrite as $NO2^-$	2.95	3.30	3.3	ND	89	100	85-115	11.1	15
Sulfate	NR	NR	1	7.3	NR	NR	85-115	NR	15
Surrogate Recovery									
Formate	0.104	0.104	0.10		104	104	85-115	0	10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128179
Date Analyzed:	10/14/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128179 1610605-002AMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfate	ND	1.02	0.10	1	-	102	85-115
Surrogate Recovery							
Formate	0.106	0.110		0.10	106	110	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfate	42.9	42.8	1	42	109	106	85-115	0.0759	15
Surrogate Recovery									
Formate	0.115	0.115	0.10		115	115	85-115	0	10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/1/16 - 12/2/16	**BatchID:**	130680
Date Analyzed:	12/1/16 - 12/2/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130680 1611D01-001AMS/MSD

QC Summary Report for E314.0 (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	11.3	4.0	10	-	113	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	9.76	10.3	10	ND	98	103	80-120	5.19	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	10.7	0.50	10	-	107	54-140
Benzene	ND	10.6	0.50	10	-	106	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	40.5	2.0	40	-	101	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.8	0.50	10	-	108	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	11.1	0.50	10	-	111	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.6	0.50	10	-	106	66-125
1,1-Dichloroethene	ND	11.6	0.50	10	-	116	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	10.4	0.50	10	-	104	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	11.3	0.50	10	-	113	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	11.6	0.50	10	-	116	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.9	0.50	10	-	109	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	11.9	0.50	10	-	119	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128170
Date Analyzed:	10/14/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128170

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.6	25.5		25	102	102	70-130
Toluene-d8	24.7	26.0		25	99	104	70-130
4-BFB	2.73	2.49		2.5	109	100	70-130

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130841
Date Analyzed:	12/6/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130841 1612121-001HMS/MSD

QC Summary Report for E350.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.23	0.10	4	-	106	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	4.40	4.54	4	0.39	100	104	88-113	3.35	20

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/5/16
Instrument: Titrino
Matrix: Water
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130761
Extraction Method: SM2320 B-1997
Analytical Method: SM2320 B
Unit: mg $CaCO_3$/L

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1612080-001A	270	1	264	1	2.10	<20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/14/16	**BatchID:**	128134
Date Analyzed:	10/14/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B-1997
Matrix:	Water		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for Alkalinity

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-001A	Total Alkalinity	mg $CaCO_3$/L	25.3	1	26.4	1	4.26	<20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	49.7	0.50	50	-	99	85-115
Arsenic	ND	51.8	0.50	50	-	104	85-115
Barium	ND	522	5.0	500	-	104	85-115
Beryllium	ND	52.5	0.50	50	-	105	85-115
Cadmium	ND	52.2	0.25	50	-	104	85-115
Chromium	ND	51.5	0.50	50	-	103	85-115
Cobalt	ND	52.2	0.50	50	-	104	85-115
Copper	ND	52.4	2.0	50	-	105	85-115
Lead	ND	50.7	0.50	50	-	101	85-115
Mercury	ND	1.24	0.050	1.25	-	99	85-115
Molybdenum	ND	50.4	0.50	50	-	101	85-115
Nickel	ND	51.7	0.50	50	-	103	85-115
Selenium	ND	51.6	0.50	50	-	103	85-115
Silver	ND	50.5	0.19	50	-	101	85-115
Thallium	ND	51.7	0.50	50	-	103	85-115
Vanadium	ND	50.8	0.50	50	-	102	85-115
Zinc	ND	520	15	500	-	104	85-115
Surrogate Recovery							
Terbium	769	778		750	103	104	70-130

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	53.9	52.8	50	ND<10	108	106	75-125	2.06	20
Arsenic	55.2	54.4	50	ND<10	110	109	75-125	1.50	20
Barium	1430	1440	500	910	104	105	75-125	0.488	20
Beryllium	54.3	55.0	50	ND<10	109	110	75-125	1.28	20
Cadmium	55.8	55.9	50	ND<5.0	109	109	75-125	0	20
Chromium	69.9	70.1	50	18.14	103	104	75-125	0.343	20
Cobalt	54.9	54.7	50	ND<10	103	103	75-125	0	20
Copper	201	208	50	148.4	106	120	75-125	3.32	20
Lead	78.3	78.6	50	25.60	105	106	75-125	0.383	20
Mercury	1.32	1.22	1.25	ND<0.50	106	98	75-125	7.85	20
Molybdenum	62.0	61.9	50	11	101	101	75-125	0	20
Nickel	68.4	69.2	50	15.63	106	107	75-125	1.16	20
Selenium	19.5	19.5	50	ND<10	39,F10	39,F10	75-125	0	20
Silver	51.3	51.3	50	ND<3.8	103	103	75-125	0	20
Thallium	51.7	51.9	50	ND<10	103	104	75-125	0.463	20
Vanadium	58.0	58.2	50	ND<10	104	104	75-125	0	20
Zinc	1330	1350	500	795.4	107	110	75-125	1.39	20
Surrogate Recovery									
Terbium	812	806	750		108	107	70-130	0.692	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<50	ND<10	-	-
Arsenic	ND<50	ND<10	-	-
Barium	901	910	0.989	20
Beryllium	ND<50	ND<10	-	-
Cadmium	ND<25	ND<5.0	-	-
Chromium	ND<50	18.14	-	-
Cobalt	ND<50	ND<10	-	-
Copper	ND<200	148.4	-	-
Lead	ND<50	25.60	-	-
Mercury	ND<2.5	ND<0.50	-	-
Molybdenum	ND<50	11	-	-
Nickel	ND<50	15.63	-	-
Selenium	ND<50	ND<10	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<19	ND<3.8	-	-
Thallium	ND<50	ND<10	-	-
Vanadium	ND<50	ND<10	-	-
Zinc	ND<1500	795.4	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130739
Date Analyzed:	12/6/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130739

QC Summary Report for SM4500-Cl G (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	0.920	0.040	1	-	92	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128107
Date Analyzed:	10/13/16	**Extraction Method:**	SM4500-Cl E
Instrument:	Titrino	**Analytical Method:**	SM4500-Cl E
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-128107

QC Summary Report for SM4500-Cl E

Analyte	MB Result	RL			
Total Chlorine	ND	0.040	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Chlorine	0.203	0.203	0.20	102	101	80-120	0.197	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130754
Date Analyzed:	12/5/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for Dissolved Oxygen

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610568-004A	Dissolved Oxygen	mg DO/L @ °C	9.07 @ 21.2°C	1	9.06 @ 21.2°C	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128098
Date Analyzed:	10/14/16	**Extraction Method:**	E200.8
Instrument:	ICP-MS3	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128098 1610547-001AMS/MSD

QC Summary Report for Hardness

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Calcium	ND	5120	100	5000	-	102	85-115
Magnesium	ND	5230	20	5000	-	105	85-115
Surrogate Recovery							
Terbium	769	778		750	103	104	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Calcium	45,600	46,500	5000	40,000	111	127,F13	75-125	1.78	20
Magnesium	22,100	22,200	5000	16,000	117	117	75-125	0	20
Surrogate Recovery									
Terbium	812	806	750		108	107	70-130	0.692	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Calcium	40,900	40,000	2.25	20
Magnesium	16,700	16,000	4.38	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130764
Date Analyzed:	12/7/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130764

QC Summary Report for Metals (Leachate)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	ND	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	ND	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	ND	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	ND	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.015	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130764
Date Analyzed:	12/7/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130764

QC Summary Report for Metals (Leachate)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.545	0.555	0.50	109	111	75-125	1.82	20
Antimony	0.0515	0.0514	0.050	103	103	75-125	0	20
Arsenic	0.0542	0.0544	0.050	108	109	75-125	0.424	20
Barium	0.542	0.539	0.50	108	108	75-125	0	20
Beryllium	0.0526	0.0540	0.050	105	108	75-125	2.66	20
Cadmium	0.0530	0.0537	0.050	106	107	75-125	1.29	20
Calcium	5.42	5.48	5	108	110	75-125	1.25	20
Chromium	0.0538	0.0537	0.050	108	107	75-125	0.112	20
Cobalt	0.0537	0.0544	0.050	107	109	75-125	1.35	20
Copper	0.0540	0.0542	0.050	108	108	75-125	0	20
Iron	5.36	5.41	5	107	108	75-125	0.817	20
Lead	0.0545	0.0548	0.050	109	110	75-125	0.677	20
Lithium	0.0532	0.0534	0.050	106	107	75-125	0.300	20
Magnesium	5.42	5.54	5	108	111	75-125	2.08	20
Manganese	5.41	5.49	5	108	110	75-125	1.47	20
Mercury	0.00134	0.00132	0.0012	107	106	75-125	1.35	20
Molybdenum	0.0536	0.0536	0.050	107	107	75-125	0	20
Nickel	0.0531	0.0534	0.050	106	107	75-125	0.507	20
Potassium	5.35	5.47	5	107	109	75-125	2.18	20
Selenium	0.0535	0.0548	0.050	107	110	75-125	2.44	20
Silver	0.0510	0.0505	0.050	102	101	75-125	0.828	20
Sodium	5.42	5.47	5	108	109	75-125	0.937	20
Strontium	0.537	0.537	0.50	107	107	75-125	0	20
Thallium	0.0511	0.0518	0.050	102	104	75-125	1.40	20
Uranium	0.0502	0.0508	0.050	100	102	75-125	1.19	20
Vanadium	0.0533	0.0537	0.050	107	107	75-125	0	20
Zinc	0.533	0.536	0.50	107	107	75-125	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130777
Date Analyzed:	12/5/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for ORP (MAI)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	ORP	±, mV vs. NHE	510 @ 22.7°C	1	498 @ 23.4°C	1	2.47	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130749
Date Analyzed:	12/5/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	Raw Water-Prescreen Testing		

QC Summary Report for pH (Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610568-004A	7.60	1	7.57	1	0.03	0.05
1610568-005A	7.72	1	7.71	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128116
Date Analyzed:	10/13/16	**Extraction Method:**	SM4500H+B-2000
Instrument:	WetChem	**Analytical Method:**	SM4500H+B-2000
Matrix:	Water		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for pH

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1610520-001C	pH	±, pH units @ 25°C	7.56	1	7.56	1	0	0.1

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130762
Date Analyzed:	12/6/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130762

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	0.958	0.995	1	96	100	80-120	3.86	20

_____ QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/17/16	**BatchID:**	128221
Date Analyzed:	10/17/16	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-128221

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Carbon Dioxide	ND	167	50	187.2	-	89	70-130

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130785
Date Analyzed:	12/5/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	Raw Water-Prescreen Testing		

QC Summary Report for SM2510B (SC, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	212	1	210	1	0.76	<2
1610568-005A	227	1	226	1	0.13	<2

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130763
Date Analyzed:	12/6/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS/LCSD-130763

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.491	0.492	0.50	98	98	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/6/16	**BatchID:**	130826
Date Analyzed:	12/6/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130826 1610568-004AMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.474	0.050	0.50	-	95	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.470	0.469	0.50	ND	94	94	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	10/13/16	**BatchID:**	128101
Date Analyzed:	10/13/16	**Extraction Method:**	SM2540 C-1997
Instrument:	WetChem	**Analytical Method:**	SM2540 C-1997
Matrix:	Water		
Project:	Raw Water-Prescreen Testing		

QC Summary Report for Total Dissolved Solids

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610520-002C	Total Dissolved Solids	mg/L	309	1	334	2	7.78	<20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130734
Date Analyzed:	12/6/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130734 1612032-001AMS/MSD

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	12.0	0.30	12	-	100	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	12.0	13.6	12	1.2	90	104	50-132	12.6	20

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/5/16
Instrument: WetChem
Matrix: Leachate
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130765
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report for SM2130B (Turbidity)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1610568-004A	0.122	1	0.130	1	6.35	<10
1612154-001B	13.1	1	13.0	1	0.77	<10

Quality Control Report

Client: Todd Groundwater
Date Prepared: 12/5/16
Date Analyzed: 12/5/16
Instrument: WC_CNS
Matrix: Water
Project: Raw Water-Prescreen Testing

WorkOrder: 1610568
BatchID: 130741
Extraction Method: E415.3
Analytical Method: E415.3
Unit: mg/L
Sample ID: MB/LCS/LCSD-130741

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	RL			
Dissolved Organic Carbon	ND	0.70	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Dissolved Organic Carbon	50.1	50.2	50	100	100	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1610568
Date Prepared:	12/5/16	**BatchID:**	130753
Date Analyzed:	12/5/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	Raw Water-Prescreen Testing	**Sample ID:**	MB/LCS-130753

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	37.8	3.7	36.7	-	103	80-120

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1610568 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: Raw Water-Prescreen Testing

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **1 day;**

Date Received: **10/13/2016**
Date Logged: **10/13/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1610568-001	Raw Water	Water	10/13/2016 00:00	☐	A	A	A	A	A	A						

Test Legend:

1	Alk_W	2	CAM17MS_TTLC_W	3	Chlorine_Total_W	4	HARDMS_W
5	PH_W	6	TDS_W	7		8	
9		10		11		12	

Prepared by: Briana Cutino

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: Raw Water-Prescreen Testing
Comments:

Work Order: 1610568
QC Level: LEVEL 2
Date Logged: 10/13/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1610568-001A	Raw Water	Water	SM2540C (TDS)	1	1G HDPE	☐	10/13/2016	1 day	None	☐	
			SM4500H+B (pH)			☐		1 day	None	☐	
			SM2340B (Hardness)			☐		1 day	None	☐	
			SM4500-Cl E (Total Chlorine)			☐		1 day	None	☐	
			E200.8 (CAM 17)			☐		1 day	None	☐	
			SM2320B (Alkalinity)			☐		1 day	None	☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

MAI Work Order # 1610568

5

McCAMPBELL ANALYTICAL, INC.

RUSH

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	●	2 Day Rush		3 Day Rush		STD		Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: Bill Motzer Bill To: Todd Groundwater
Company: Todd Groundwater
Email: wmotzer@toddgroundwater.com
Alt Email: elin@toddgroundwater.com; ctaylor@toddgroundwater.com Tele:
Project Name/#: Raw Water - Prescreen Testing
Project Location: Internal Testing PO #
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	Total Dissolved Solids	Total Chlorine	Alkalinity	Hardness	pH	CAM17 metals													
Raw Water	10/13/16			Water		●	●	●	●	●	●													

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	10/13	18:50		10/13	18:50

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page ___ of ___

Sample Receipt Checklist

Client Name: **Todd Groundwater**
Project Name: **Raw Water-Prescreen Testing**
WorkOrder №: **1610568** Matrix: Water
Carrier: Benjamin Yslas (MAI Courier)

Date and Time Received: **10/13/2016 18:50**
Date Logged: **10/13/2016**
Received by: Rosa Venegas
Logged by: Briana Cutino

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☐	No ☑	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 24.3°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☑	NA ☐
Samples Received on Ice?	Yes ☐	No ☑	

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

Griselda Martinez

From:	Edwin Lin <ELin@toddgroundwater.com>
Sent:	Tuesday, November 08, 2016 9:38 AM
To:	Griselda Martinez; 'Rosa Venegas'
Cc:	'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject:	RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. - Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?

STEP 2: Enter amount of each chemical
to be added (expressed as 100% chemical).
Press Ctrl+C to select chemicals for this list.

Calcium chloride	**45**	mg/L
Caustic soda	**5.19**	mg/L
Lime (slaked)	**0**	mg/L
Soda ash	**0**	mg/L
Sodium hypochlorite	**3**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609C36

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: SCVWD-CPR

Project Received: 09/27/2016

Analytical Report reviewed & approved for release on 12/14/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

NELAP ACCREDITED TNI LABORATORY

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: SCVWD-CPR
WorkOrder: 1609C36

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 μm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 10ft	**1609C36-001A**	**Soil**	**09/27/2016 10:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 10:21
Nitrate as NO3$^-$	ND	45	1	09/29/2016 10:21

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 10:21

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 15ft	**1609C36-002A**	**Soil**	**09/27/2016 10:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 11:00
Nitrate as NO3$^-$	ND	45	1	09/29/2016 11:00

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 11:00

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 20ft	**1609C36-003A**	**Soil**	**09/27/2016 10:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 11:39
Nitrate as NO3$^-$	ND	45	1	09/29/2016 11:39

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 11:39

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 25ft	**1609C36-004A**	**Soil**	**09/27/2016 10:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**12**	10	1	09/29/2016 12:18
Nitrate as NO3$^-$	**53**	45	1	09/29/2016 12:18

Surrogates	REC (%)	Limits	
Formate	101	80-120	09/29/2016 12:18

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 30ft	**1609C36-005A**	**Soil**	**09/27/2016 10:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 12:57
Nitrate as NO3$^-$	ND	45	1	09/29/2016 12:57

Surrogates	REC (%)	Limits	
Formate	99	80-120	09/29/2016 12:57

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 10ft	**1609C36-006A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 13:36
Nitrate as NO3$^-$	ND	45	1	09/29/2016 13:36

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 13:36

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 15ft	**1609C36-007A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 14:15
Nitrate as NO3$^-$	ND	45	1	09/29/2016 14:15

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 14:15

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 20ft	**1609C36-008A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/29/2016 15:34
Nitrate as NO3$^-$	ND	45	1	09/29/2016 15:34

Surrogates	REC (%)	Limits	
Formate	100	80-120	09/29/2016 15:34

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 25ft	**1609C36-009A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 12:19
Nitrate as NO3$^-$	ND	45	1	09/30/2016 12:19

Surrogates	REC (%)	Limits	
Formate	101	80-120	09/30/2016 12:19

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 30ft	**1609C36-010A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 12:58
Nitrate as NO3⁻	ND	45	1	09/30/2016 12:58

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/30/2016 12:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 35ft	**1609C36-011A**	**Soil**	**09/27/2016 09:50**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 13:37
Nitrate as NO3⁻	ND	45	1	09/30/2016 13:37

Surrogates	REC (%)	Limits	Date Analyzed
Formate	98	80-120	09/30/2016 13:37

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCVWD-CPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 10ft	**1609C36-001A**	**Soil**	**09/27/2016 10:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 06:02

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 15ft	**1609C36-002A**	**Soil**	**09/27/2016 10:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 06:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 20ft	**1609C36-003A**	**Soil**	**09/27/2016 10:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 07:27

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 25ft	**1609C36-004A**	**Soil**	**09/27/2016 10:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 08:10

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCVWD-CPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 DUP 30ft	**1609C36-005A**	**Soil**	**09/27/2016 10:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 10:18

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 10ft	**1609C36-006A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 11:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 15ft	**1609C36-007A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 12:26

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 20ft	**1609C36-008A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 13:09

Analyst(s): AO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCVWD-CPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 25ft	**1609C36-009A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 13:52

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 30ft	**1609C36-010A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 14:34

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 DUP 35ft	**1609C36-011A**	**Soil**	**09/27/2016 09:50**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 15:17

Analyst(s): AO

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Prepared:	9/27/16	**BatchID:**	127190
Date Analyzed:	9/28/16	**Extraction Method:**	E300.0
Instrument:	IC3	**Analytical Method:**	E300.0
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-127190

QC Summary Report for E300.0

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Nitrate as N	ND	10	-	-	-
Nitrate as $NO3^-$	ND	45	-	-	-
Surrogate Recovery					
Formate	9.75		10	97	80-120

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Nitrate as N	96.2	96.1	100	96	96	80-120	0	20
Nitrate as $NO3^-$	426	426	440	97	97	80-120	0	20
Surrogate Recovery								
Formate	9.47	9.60	10	95	96	80-120	1.29	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C36
Date Prepared:	9/28/16	**BatchID:**	127264
Date Analyzed:	10/3/16	**Extraction Method:**	E314.0 modified
Instrument:	IC1	**Analytical Method:**	E314.0m
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127264 1609C36-004AMS/MSD

QC Summary Report for E314.0m (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	1.05	0.40	1	-	105	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	1.04	1.06	1	ND	104	106	70-130	1.99	20

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609C36 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609C36-001	SONIC-1 DUP 10ft	Soil	9/27/2016 10:00	☐	A	A	A									
1609C36-002	SONIC-1 DUP 15ft	Soil	9/27/2016 10:00	☐	A	A	A									
1609C36-003	SONIC-1 DUP 20ft	Soil	9/27/2016 10:00	☐	A	A	A									
1609C36-004	SONIC-1 DUP 25ft	Soil	9/27/2016 10:00	☐	A	A	A									
1609C36-005	SONIC-1 DUP 30ft	Soil	9/27/2016 10:00	☐	A	A	A									
1609C36-006	SONIC-2 DUP 10ft	Soil	9/27/2016 09:50	☐	A	A	A									
1609C36-007	SONIC-2 DUP 15ft	Soil	9/27/2016 09:50	☐	A	A	A									
1609C36-008	SONIC-2 DUP 20ft	Soil	9/27/2016 09:50	☐	A	A	A									
1609C36-009	SONIC-2 DUP 25ft	Soil	9/27/2016 09:50	☐	A	A	A									
1609C36-010	SONIC-2 DUP 30ft	Soil	9/27/2016 09:50	☐	A	A	A									
1609C36-011	SONIC-2 DUP 35ft	Soil	9/27/2016 09:50	☐	A	A	A									

Test Legend:

1	**300_0_S**	2	**314_S**	3	**SC_S**	4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A, 011A contain testgroup 314.0_S (Perchlorate).

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER **Project:** SCVWD-CPR **Work Order:** 1609C36
Client Contact: Bill Motzer **QC Level:** LEVEL 2
Contact's Email: bmotzer@toddgroundwater.com **Comments:** **Date Logged:** 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C36-001A	SONIC-1 DUP 10ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-002A	SONIC-1 DUP 15ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-003A	SONIC-1 DUP 20ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-004A	SONIC-1 DUP 25ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-005A	SONIC-1 DUP 30ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-006A	SONIC-2 DUP 10ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609C36-007A	SONIC-2 DUP 15ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-CPR

Comments:

Work Order: 1609C36
QC Level: LEVEL 2
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C36-008A	SONIC-2 DUP 20ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$ >			☐		5 days		☐	
1609C36-009A	SONIC-2 DUP 25ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$ >			☐		5 days		☐	
1609C36-010A	SONIC-2 DUP 30ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$ >			☐		5 days		☐	
1609C36-011A	SONIC-2 DUP 35ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as $NO3^-$ >			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1609C36

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: wmotzer@toddgroundwater.com
Alt Email: Tele:
Project Name/#: SCVWD - IPR
Project Location: Ford Road Ponds PO #
Sampler Signature: William E. Motzer

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HH Extraction *	ClO4 NO3 *	SPLC Leachate *																
SONIC-1 DUP 10 FT	09-27-16	1000	6	Soil	None	✓	✓	✓																
SONIC-1 DUP 15 FT	09-27-16	1000	6	↓	↓	✓	✓	✓																
SONIC-1 DUP 20 FT	09-27-16	1000	6			✓	✓	✓																
SONIC-1 DUP 25 FT	09-2716	1000	6			✓	✓	✓																
SONIC-1 DUP 30 FT	09-27-16	1000	6			✓	✓	✓																
SONIC-2 DUP 10 FT	09-27-16	0950	6	Soil	None	✓	✓	✓																
SONIC-2 DUP 15 FT	09-27-16	0950	6	↓	↓	✓	✓	✓																
SONIC-2 DUP 20 FT	09-27-16	0950	6			✓	✓	✓																
SONIC-2 DUP 25 FT	09-27-16	0950	6			✓	✓	✓																
SONIC-2 DUP 30 FT	09-27-16	0950	6			✓	✓	✓																

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	9/27/16	1330		9/27/16	1330
	9/27/16	1830		9/27/16	1830

Comments / Instructions

* See instructions sent to lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 2.1 °C Initials

General COC

MAI Work Order # ____________

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William E. Mofza Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmofzer @ toddgroundwater.com
Alt Email: Tele:
Project Name/#: SCVWD-IPL
Project Location: Ford Road Ponds PO #
Sampler Signature: William E. Mofza

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HSH Extraction*	ClO4, NO3*	SPLC Leachate*																
SDWIC-2 Dup @ 35ft	09/27/16	0950	G	Soil	None																			

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
				9/27	1330
	9/27	1830		9/27/16	1830

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ________ °C Initials ________

Sample Receipt Checklist

Client Name: **Todd Groundwater**
Project Name: **SCVWD-CPR**

WorkOrder №: **1609C36** Matrix: Soil
Carrier: Benjamin Yslas (MAI Courier)

Date and Time Received **9/27/2016 18:30**
Date Logged: **9/28/2016**
Received by: Jena Alfaro
Logged by: Jena Alfaro

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Sample/Temp Blank temperature	Temp: 2.1°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1609B80 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: SCVWD-IPR

Project Received: 09/26/2016

Analytical Report reviewed & approved for release on 10/10/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: SCVWD-IPR
WorkOrder: 1609B80

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

B	analyte detected in the associated Method Blank and in the sample
R	RPD outside accepted recovery limits

Glossary of Terms & Qualifier Definitions

Client:	Todd Groundwater
Project:	SCVWD-IPR
WorkOrder:	1609B80

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

Case Narrative

Client: Todd Groundwater
Project: SCVWD-IPR
Work Order: 1609B80
December 09, 2016

Langelier Index by SM2330B Calculations @ 23 degrees C

1609B80-002C; S1 15ft Chem Dose 1
Langelier Index = -0.338753645

1609B80-002D; S1 15ft Chem Dose 2
Langelier Index = -0.261226729

1609B80-003B; S-1 20ft Chem Dose 1
Langelier Index = -0.142954002

1609B80-003C; S-1 20ft Chem Dose 2
Langelier Index = -0.116917449

1609B80-005C; S-1 30ft Chem Dose 1
Langelier Index = -0.419113151

1609B80-005D; S-1 30ft Chem Dose 2
Langelier Index = -0.241905128

1609B80-014C; S-2 10ft Chem Dose 1
Langelier Index = 0.003091637

1609B80-014D; S-2 10ft Chem Dose 2
Langelier Index = -0.025286603

1609B80-017C; S-2 25ft Chem Dose 1
Langelier Index = -0.815543411

1609B80-017D; S-2 25ft Chem Dose 2
Langelier Index = -0.958864593

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1609B80
Project: SCVWD-IPR December 08, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 1: 15, 20, 30
Sonic 2: 10, 25

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.

3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.

4. Leachate from each vial was filtered thru 0.45 micron filter.

5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

_______ Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater
Project: SCWD-IPR

Work Order: 1609B80
December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	Chemical dose 1	Chemical dose 2
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	Measured Value: CaCl2 and NaOH	Measured Value: CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0038**	0.00020	1	11/25/2016 20:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0037**	0.00020	1	11/25/2016 21:19

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00037**	0.00020	1	11/25/2016 21:40

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00038**	0.00020	1	11/25/2016 22:01

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**	0.00020	1	11/25/2016 22:23

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**	0.00020	1	11/25/2016 22:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0066**	0.00020	1	11/25/2016 23:05

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0068**	0.00020	1	11/25/2016 23:27

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00055**	0.00020	1	11/26/2016 00:31

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**	0.00020	1	11/26/2016 00:52

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/27/16	**Analytical Method:**	E300.0
Project:	SCUWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 10ft bsg	**1609B80-001A**	**Soil**	**09/26/2016 11:10**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 07:43
Nitrate as $NO3^{-}$	ND	45	1	09/28/2016 07:43

Surrogates	REC (%)	Limits	Date Analyzed
Formate	99	80-120	09/28/2016 07:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 15ft bsg	**1609B80-002A**	**Soil**	**09/26/2016 11:25**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 08:22
Nitrate as $NO3^{-}$	ND	45	1	09/28/2016 08:22

Surrogates	REC (%)	Limits	Date Analyzed
Formate	98	80-120	09/28/2016 08:22

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 20ft bsg	**1609B80-003A**	**Soil**	**09/26/2016 11:50**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 09:01
Nitrate as $NO3^{-}$	ND	45	1	09/28/2016 09:01

Surrogates	REC (%)	Limits	Date Analyzed
Formate	99	80-120	09/28/2016 09:01

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/27/16	**Analytical Method:**	E300.0
Project:	SCUWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 25ft bsg	**1609B80-004A**	**Soil**	**09/26/2016 12:15**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 09:40
Nitrate as $NO3^-$	ND	45	1	09/28/2016 09:40

Surrogates	REC (%)	Limits	Date Analyzed
Formate	98	80-120	09/28/2016 09:40

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 30ft bsg	**1609B80-005A**	**Soil**	**09/26/2016 13:00**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 10:19
Nitrate as $NO3^-$	ND	45	1	09/28/2016 10:19

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 10:19

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 35ft bsg	**1609B80-006A**	**Soil**	**09/26/2016 13:10**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 10:58
Nitrate as $NO3^-$	ND	45	1	09/28/2016 10:58

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 10:58

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/27/16	**Analytical Method:**	E300.0
Project:	SCUWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 40ft bsg	**1609B80-007A**	**Soil**	**09/26/2016 13:30**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 12:56
Nitrate as NO3⁻	ND	45	1	09/28/2016 12:56

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 12:56

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 10ft	**1609B80-014A**	**Soil**	**09/26/2016 15:30**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 13:35
Nitrate as NO3⁻	ND	45	1	09/28/2016 13:35

Surrogates	REC (%)	Limits	Date Analyzed
Formate	96	80-120	09/28/2016 13:35

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 15ft	**1609B80-015A**	**Soil**	**09/26/2016 15:35**	**IC3**	**127146**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 14:14
Nitrate as NO3⁻	ND	45	1	09/28/2016 14:14

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 14:14

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/27/16	**Analytical Method:**	E300.0
Project:	SCUWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 20ft	**1609B80-016A**	**Soil**	**09/26/2016 15:40**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 14:53
Nitrate as $NO3^-$	ND	45	1	09/28/2016 14:53

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 14:53

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 25ft	**1609B80-017A**	**Soil**	**09/26/2016 15:45**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/28/2016 15:32
Nitrate as $NO3^-$	ND	45	1	09/28/2016 15:32

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/28/2016 15:32

Analyst(s): AO

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 11/21/16
Project: SCVWD-IPR

WorkOrder: 1609B80
Extraction Method: E300.1
Analytical Method: E300.1
Unit: mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 15:31
Chloride	**39**	5.0	50	11/24/2016 16:15
Fluoride	**1.0**	0.10	1	11/21/2016 15:31
Nitrate as N	**2.4**	0.10	1	11/21/2016 15:31
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 15:31
Nitrite as N	ND	0.10	1	11/21/2016 15:31
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 15:31
Sulfate	**16**	5.0	50	11/24/2016 16:15

Surrogates	REC (%)	Limits	Date Analyzed
	104	90-115	11/21/2016 15:31

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 16:11
Chloride	**38**	5.0	50	11/24/2016 16:54
Fluoride	**0.96**	0.10	1	11/21/2016 16:11
Nitrate as N	**2.3**	0.10	1	11/21/2016 16:11
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 16:11
Nitrite as N	ND	0.10	1	11/21/2016 16:11
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 16:11
Sulfate	**15**	5.0	50	11/24/2016 16:54

Surrogates	REC (%)	Limits	Date Analyzed
	105	90-115	11/21/2016 16:11

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 16:50
Chloride	**38**	5.0	50	11/24/2016 17:34
Fluoride	**0.33**	0.10	1	11/21/2016 16:50
Nitrate as N	**0.31**	0.10	1	11/21/2016 16:50
Nitrate as $NO3^-$	**1.4**	0.45	1	11/21/2016 16:50
Nitrite as N	ND	0.10	1	11/21/2016 16:50
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 16:50
Sulfate	**3.0**	0.10	1	11/21/2016 16:50

Surrogates	REC (%)	Limits	
	106	90-115	11/21/2016 16:50

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 17:29
Chloride	**38**	5.0	50	11/24/2016 18:13
Fluoride	**0.33**	0.10	1	11/21/2016 17:29
Nitrate as N	**0.41**	0.10	1	11/21/2016 17:29
Nitrate as $NO3^-$	**1.8**	0.45	1	11/21/2016 17:29
Nitrite as N	ND	0.10	1	11/21/2016 17:29
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 17:29
Sulfate	**3.2**	0.10	1	11/21/2016 17:29

Surrogates	REC (%)	Limits	
	106	90-115	11/21/2016 17:29

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 18:09
Chloride	**39**	5.0	50	11/24/2016 18:52
Fluoride	**0.25**	0.10	1	11/21/2016 18:09
Nitrate as N	**2.3**	0.10	1	11/21/2016 18:09
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 18:09
Nitrite as N	ND	0.10	1	11/21/2016 18:09
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 18:09
Sulfate	**4.1**	0.10	1	11/21/2016 18:09

Surrogates	REC (%)	Limits	
	106	90-115	11/21/2016 18:09

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 18:48
Chloride	**40**	5.0	50	11/24/2016 19:31
Fluoride	**0.26**	0.10	1	11/21/2016 18:48
Nitrate as N	**2.3**	0.10	1	11/21/2016 18:48
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 18:48
Nitrite as N	ND	0.10	1	11/21/2016 18:48
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 18:48
Sulfate	**4.7**	0.10	1	11/21/2016 18:48

Surrogates	REC (%)	Limits	
	105	90-115	11/21/2016 18:48

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 19:28
Chloride	**39**	5.0	50	11/24/2016 20:10
Fluoride	**0.85**	0.10	1	11/21/2016 19:28
Nitrate as N	**2.4**	0.10	1	11/21/2016 19:28
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 19:28
Nitrite as N	ND	0.10	1	11/21/2016 19:28
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 19:28
Sulfate	**9.6**	5.0	50	11/24/2016 20:10

Surrogates	REC (%)	Limits	
	107	90-115	11/21/2016 19:28

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/21/2016 20:07
Chloride	**41**	5.0	50	11/24/2016 20:49
Fluoride	**0.82**	0.10	1	11/21/2016 20:07
Nitrate as N	**2.4**	0.10	1	11/21/2016 20:07
Nitrate as $NO3^-$	**10**	0.45	1	11/21/2016 20:07
Nitrite as N	ND	0.10	1	11/21/2016 20:07
Nitrite as $NO2^-$	ND	0.33	1	11/21/2016 20:07
Sulfate	**9.9**	5.0	50	11/24/2016 20:49

Surrogates	REC (%)	Limits	
	106	90-115	11/21/2016 20:07

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 15:05
Chloride	**39**	5.0	50	11/24/2016 21:29
Fluoride	**0.15**	0.10	1	11/22/2016 15:05
Nitrate as N	**2.4**	0.10	1	11/22/2016 15:05
Nitrate as $NO3^-$	**11**	0.45	1	11/22/2016 15:05
Nitrite as N	ND	0.10	1	11/22/2016 15:05
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 15:05
Sulfate	**3.2**	0.10	1	11/22/2016 15:05

Surrogates	REC (%)	Limits	
	103	90-115	11/22/2016 15:05

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 15:44
Chloride	**42**	5.0	50	11/24/2016 23:26
Fluoride	**0.14**	0.10	1	11/22/2016 15:44
Nitrate as N	**2.4**	0.10	1	11/22/2016 15:44
Nitrate as $NO3^-$	**11**	0.45	1	11/22/2016 15:44
Nitrite as N	ND	0.10	1	11/22/2016 15:44
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 15:44
Sulfate	**3.1**	0.10	1	11/22/2016 15:44

Surrogates	REC (%)	Limits	
	101	90-115	11/22/2016 15:44

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 06:37

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 07:21

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 08:06

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 08:51

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 09:36

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 10:20

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 11:05

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 11:50

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 14:04

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 14:49

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCUWD-IPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 10ft bsg	**1609B80-001A**	**Soil**	**09/26/2016 11:10**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 02:59

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 15ft bsg	**1609B80-002A**	**Soil**	**09/26/2016 11:25**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 03:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 20ft bsg	**1609B80-003A**	**Soil**	**09/26/2016 11:50**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 04:29

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 25ft bsg	**1609B80-004A**	**Soil**	**09/26/2016 12:15**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 05:13

Analyst(s): AO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCUWD-IPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 30ft bsg	**1609B80-005A**	**Soil**	**09/26/2016 13:00**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 05:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 35ft bsg	**1609B80-006A**	**Soil**	**09/26/2016 13:10**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 06:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 40ft bsg	**1609B80-007A**	**Soil**	**09/26/2016 13:30**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 07:28

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 10ft	**1609B80-014A**	**Soil**	**09/26/2016 15:30**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 08:07

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCUWD-IPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 15ft	**1609B80-015A**	**Soil**	**09/26/2016 15:35**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 11:26

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 20ft	**1609B80-016A**	**Soil**	**09/26/2016 15:40**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 12:06

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 25ft	**1609B80-017A**	**Soil**	**09/26/2016 15:45**	**IC1**	**127621**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	09/28/2016 12:45

Analyst(s): AO

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	09/30/2016 23:16
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/30/2016 23:16
Benzene	ND	0.0050	1	09/30/2016 23:16
Bromobenzene	ND	0.0050	1	09/30/2016 23:16
Bromochloromethane	ND	0.0050	1	09/30/2016 23:16
Bromodichloromethane	ND	0.0050	1	09/30/2016 23:16
Bromoform	ND	0.0050	1	09/30/2016 23:16
Bromomethane	ND	0.0050	1	09/30/2016 23:16
2-Butanone (MEK)	ND	0.020	1	09/30/2016 23:16
t-Butyl alcohol (TBA)	ND	0.050	1	09/30/2016 23:16
n-Butyl benzene	ND	0.0050	1	09/30/2016 23:16
sec-Butyl benzene	ND	0.0050	1	09/30/2016 23:16
tert-Butyl benzene	ND	0.0050	1	09/30/2016 23:16
Carbon Disulfide	ND	0.0050	1	09/30/2016 23:16
Carbon Tetrachloride	ND	0.0050	1	09/30/2016 23:16
Chlorobenzene	ND	0.0050	1	09/30/2016 23:16
Chloroethane	ND	0.0050	1	09/30/2016 23:16
Chloroform	ND	0.0050	1	09/30/2016 23:16
Chloromethane	ND	0.0050	1	09/30/2016 23:16
2-Chlorotoluene	ND	0.0050	1	09/30/2016 23:16
4-Chlorotoluene	ND	0.0050	1	09/30/2016 23:16
Dibromochloromethane	ND	0.0050	1	09/30/2016 23:16
1,2-Dibromo-3-chloropropane	ND	0.0040	1	09/30/2016 23:16
1,2-Dibromoethane (EDB)	ND	0.0040	1	09/30/2016 23:16
Dibromomethane	ND	0.0050	1	09/30/2016 23:16
1,2-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:16
1,3-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:16
1,4-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:16
Dichlorodifluoromethane	ND	0.0050	1	09/30/2016 23:16
1,1-Dichloroethane	ND	0.0050	1	09/30/2016 23:16
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	09/30/2016 23:16
1,1-Dichloroethene	ND	0.0050	1	09/30/2016 23:16
cis-1,2-Dichloroethene	ND	0.0050	1	09/30/2016 23:16
trans-1,2-Dichloroethene	ND	0.0050	1	09/30/2016 23:16
1,2-Dichloropropane	ND	0.0050	1	09/30/2016 23:16
1,3-Dichloropropane	ND	0.0050	1	09/30/2016 23:16
2,2-Dichloropropane	ND	0.0050	1	09/30/2016 23:16

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/30/2016 23:16
cis-1,3-Dichloropropene	ND	0.0050	1	09/30/2016 23:16
trans-1,3-Dichloropropene	ND	0.0050	1	09/30/2016 23:16
Diisopropyl ether (DIPE)	ND	0.0050	1	09/30/2016 23:16
Ethylbenzene	ND	0.0050	1	09/30/2016 23:16
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/30/2016 23:16
Freon 113	ND	0.0050	1	09/30/2016 23:16
Hexachlorobutadiene	ND	0.0050	1	09/30/2016 23:16
Hexachloroethane	ND	0.0050	1	09/30/2016 23:16
2-Hexanone	ND	0.0050	1	09/30/2016 23:16
Isopropylbenzene	ND	0.0050	1	09/30/2016 23:16
4-Isopropyl toluene	ND	0.0050	1	09/30/2016 23:16
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/30/2016 23:16
Methylene chloride	ND	0.0050	1	09/30/2016 23:16
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/30/2016 23:16
Naphthalene	ND	0.0050	1	09/30/2016 23:16
n-Propyl benzene	ND	0.0050	1	09/30/2016 23:16
Styrene	ND	0.0050	1	09/30/2016 23:16
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/30/2016 23:16
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/30/2016 23:16
Tetrachloroethene	ND	0.0050	1	09/30/2016 23:16
Toluene	ND	0.0050	1	09/30/2016 23:16
1,2,3-Trichlorobenzene	ND	0.0050	1	09/30/2016 23:16
1,2,4-Trichlorobenzene	ND	0.0050	1	09/30/2016 23:16
1,1,1-Trichloroethane	ND	0.0050	1	09/30/2016 23:16
1,1,2-Trichloroethane	ND	0.0050	1	09/30/2016 23:16
Trichloroethene	ND	0.0050	1	09/30/2016 23:16
Trichlorofluoromethane	ND	0.0050	1	09/30/2016 23:16
1,2,3-Trichloropropane	ND	0.0050	1	09/30/2016 23:16
1,2,4-Trimethylbenzene	ND	0.0050	1	09/30/2016 23:16
1,3,5-Trimethylbenzene	ND	0.0050	1	09/30/2016 23:16
Vinyl Chloride	ND	0.0050	1	09/30/2016 23:16
Xylenes, Total	ND	0.0050	1	09/30/2016 23:16

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		09/30/2016 23:16
Toluene-d8	108	70-130		09/30/2016 23:16
4-BFB	92	70-130		09/30/2016 23:16
Benzene-d6	87	60-140		09/30/2016 23:16
Ethylbenzene-d10	104	60-140		09/30/2016 23:16
1,2-DCB-d4	72	60-140		09/30/2016 23:16

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	**1609B80-009A**	**Soil**	**09/26/2016 11:25**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	09/30/2016 23:55
tert-Amyl methyl ether (TAME)	ND	0.0050	1	09/30/2016 23:55
Benzene	ND	0.0050	1	09/30/2016 23:55
Bromobenzene	ND	0.0050	1	09/30/2016 23:55
Bromochloromethane	ND	0.0050	1	09/30/2016 23:55
Bromodichloromethane	ND	0.0050	1	09/30/2016 23:55
Bromoform	ND	0.0050	1	09/30/2016 23:55
Bromomethane	ND	0.0050	1	09/30/2016 23:55
2-Butanone (MEK)	ND	0.020	1	09/30/2016 23:55
t-Butyl alcohol (TBA)	ND	0.050	1	09/30/2016 23:55
n-Butyl benzene	ND	0.0050	1	09/30/2016 23:55
sec-Butyl benzene	ND	0.0050	1	09/30/2016 23:55
tert-Butyl benzene	ND	0.0050	1	09/30/2016 23:55
Carbon Disulfide	ND	0.0050	1	09/30/2016 23:55
Carbon Tetrachloride	ND	0.0050	1	09/30/2016 23:55
Chlorobenzene	ND	0.0050	1	09/30/2016 23:55
Chloroethane	ND	0.0050	1	09/30/2016 23:55
Chloroform	ND	0.0050	1	09/30/2016 23:55
Chloromethane	ND	0.0050	1	09/30/2016 23:55
2-Chlorotoluene	ND	0.0050	1	09/30/2016 23:55
4-Chlorotoluene	ND	0.0050	1	09/30/2016 23:55
Dibromochloromethane	ND	0.0050	1	09/30/2016 23:55
1,2-Dibromo-3-chloropropane	ND	0.0040	1	09/30/2016 23:55
1,2-Dibromoethane (EDB)	ND	0.0040	1	09/30/2016 23:55
Dibromomethane	ND	0.0050	1	09/30/2016 23:55
1,2-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:55
1,3-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:55
1,4-Dichlorobenzene	ND	0.0050	1	09/30/2016 23:55
Dichlorodifluoromethane	ND	0.0050	1	09/30/2016 23:55
1,1-Dichloroethane	ND	0.0050	1	09/30/2016 23:55
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	09/30/2016 23:55
1,1-Dichloroethene	ND	0.0050	1	09/30/2016 23:55
cis-1,2-Dichloroethene	ND	0.0050	1	09/30/2016 23:55
trans-1,2-Dichloroethene	ND	0.0050	1	09/30/2016 23:55
1,2-Dichloropropane	ND	0.0050	1	09/30/2016 23:55
1,3-Dichloropropane	ND	0.0050	1	09/30/2016 23:55
2,2-Dichloropropane	ND	0.0050	1	09/30/2016 23:55

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	**1609B80-009A**	**Soil**	**09/26/2016 11:25**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	09/30/2016 23:55
cis-1,3-Dichloropropene	ND	0.0050	1	09/30/2016 23:55
trans-1,3-Dichloropropene	ND	0.0050	1	09/30/2016 23:55
Diisopropyl ether (DIPE)	ND	0.0050	1	09/30/2016 23:55
Ethylbenzene	ND	0.0050	1	09/30/2016 23:55
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	09/30/2016 23:55
Freon 113	ND	0.0050	1	09/30/2016 23:55
Hexachlorobutadiene	ND	0.0050	1	09/30/2016 23:55
Hexachloroethane	ND	0.0050	1	09/30/2016 23:55
2-Hexanone	ND	0.0050	1	09/30/2016 23:55
Isopropylbenzene	ND	0.0050	1	09/30/2016 23:55
4-Isopropyl toluene	ND	0.0050	1	09/30/2016 23:55
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	09/30/2016 23:55
Methylene chloride	ND	0.0050	1	09/30/2016 23:55
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	09/30/2016 23:55
Naphthalene	ND	0.0050	1	09/30/2016 23:55
n-Propyl benzene	ND	0.0050	1	09/30/2016 23:55
Styrene	ND	0.0050	1	09/30/2016 23:55
1,1,1,2-Tetrachloroethane	ND	0.0050	1	09/30/2016 23:55
1,1,2,2-Tetrachloroethane	ND	0.0050	1	09/30/2016 23:55
Tetrachloroethene	ND	0.0050	1	09/30/2016 23:55
Toluene	ND	0.0050	1	09/30/2016 23:55
1,2,3-Trichlorobenzene	ND	0.0050	1	09/30/2016 23:55
1,2,4-Trichlorobenzene	ND	0.0050	1	09/30/2016 23:55
1,1,1-Trichloroethane	ND	0.0050	1	09/30/2016 23:55
1,1,2-Trichloroethane	ND	0.0050	1	09/30/2016 23:55
Trichloroethene	ND	0.0050	1	09/30/2016 23:55
Trichlorofluoromethane	ND	0.0050	1	09/30/2016 23:55
1,2,3-Trichloropropane	ND	0.0050	1	09/30/2016 23:55
1,2,4-Trimethylbenzene	ND	0.0050	1	09/30/2016 23:55
1,3,5-Trimethylbenzene	ND	0.0050	1	09/30/2016 23:55
Vinyl Chloride	ND	0.0050	1	09/30/2016 23:55
Xylenes, Total	ND	0.0050	1	09/30/2016 23:55

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	**1609B80-009A**	**Soil**	**09/26/2016 11:25**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		09/30/2016 23:55
Toluene-d8	109	70-130		09/30/2016 23:55
4-BFB	89	70-130		09/30/2016 23:55
Benzene-d6	92	60-140		09/30/2016 23:55
Ethylbenzene-d10	110	60-140		09/30/2016 23:55
1,2-DCB-d4	78	60-140		09/30/2016 23:55

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 00:34
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 00:34
Benzene	ND	0.0050	1	10/01/2016 00:34
Bromobenzene	ND	0.0050	1	10/01/2016 00:34
Bromochloromethane	ND	0.0050	1	10/01/2016 00:34
Bromodichloromethane	ND	0.0050	1	10/01/2016 00:34
Bromoform	ND	0.0050	1	10/01/2016 00:34
Bromomethane	ND	0.0050	1	10/01/2016 00:34
2-Butanone (MEK)	ND	0.020	1	10/01/2016 00:34
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 00:34
n-Butyl benzene	ND	0.0050	1	10/01/2016 00:34
sec-Butyl benzene	ND	0.0050	1	10/01/2016 00:34
tert-Butyl benzene	ND	0.0050	1	10/01/2016 00:34
Carbon Disulfide	ND	0.0050	1	10/01/2016 00:34
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 00:34
Chlorobenzene	ND	0.0050	1	10/01/2016 00:34
Chloroethane	ND	0.0050	1	10/01/2016 00:34
Chloroform	ND	0.0050	1	10/01/2016 00:34
Chloromethane	ND	0.0050	1	10/01/2016 00:34
2-Chlorotoluene	ND	0.0050	1	10/01/2016 00:34
4-Chlorotoluene	ND	0.0050	1	10/01/2016 00:34
Dibromochloromethane	ND	0.0050	1	10/01/2016 00:34
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 00:34
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 00:34
Dibromomethane	ND	0.0050	1	10/01/2016 00:34
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 00:34
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 00:34
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 00:34
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 00:34
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 00:34
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 00:34
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 00:34
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 00:34
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 00:34
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 00:34
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 00:34
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 00:34

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 00:34
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 00:34
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 00:34
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 00:34
Ethylbenzene	ND	0.0050	1	10/01/2016 00:34
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 00:34
Freon 113	ND	0.0050	1	10/01/2016 00:34
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 00:34
Hexachloroethane	ND	0.0050	1	10/01/2016 00:34
2-Hexanone	ND	0.0050	1	10/01/2016 00:34
Isopropylbenzene	ND	0.0050	1	10/01/2016 00:34
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 00:34
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 00:34
Methylene chloride	ND	0.0050	1	10/01/2016 00:34
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 00:34
Naphthalene	ND	0.0050	1	10/01/2016 00:34
n-Propyl benzene	ND	0.0050	1	10/01/2016 00:34
Styrene	ND	0.0050	1	10/01/2016 00:34
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 00:34
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 00:34
Tetrachloroethene	ND	0.0050	1	10/01/2016 00:34
Toluene	ND	0.0050	1	10/01/2016 00:34
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 00:34
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 00:34
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 00:34
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 00:34
Trichloroethene	ND	0.0050	1	10/01/2016 00:34
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 00:34
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 00:34
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 00:34
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 00:34
Vinyl Chloride	ND	0.0050	1	10/01/2016 00:34
Xylenes, Total	ND	0.0050	1	10/01/2016 00:34

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 00:34
Toluene-d8	110	70-130		10/01/2016 00:34
4-BFB	91	70-130		10/01/2016 00:34
Benzene-d6	90	60-140		10/01/2016 00:34
Ethylbenzene-d10	106	60-140		10/01/2016 00:34
1,2-DCB-d4	76	60-140		10/01/2016 00:34

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	**1609B80-011A**	**Soil**	**09/26/2016 12:15**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 01:12
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 01:12
Benzene	ND	0.0050	1	10/01/2016 01:12
Bromobenzene	ND	0.0050	1	10/01/2016 01:12
Bromochloromethane	ND	0.0050	1	10/01/2016 01:12
Bromodichloromethane	ND	0.0050	1	10/01/2016 01:12
Bromoform	ND	0.0050	1	10/01/2016 01:12
Bromomethane	ND	0.0050	1	10/01/2016 01:12
2-Butanone (MEK)	ND	0.020	1	10/01/2016 01:12
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 01:12
n-Butyl benzene	ND	0.0050	1	10/01/2016 01:12
sec-Butyl benzene	ND	0.0050	1	10/01/2016 01:12
tert-Butyl benzene	ND	0.0050	1	10/01/2016 01:12
Carbon Disulfide	ND	0.0050	1	10/01/2016 01:12
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 01:12
Chlorobenzene	ND	0.0050	1	10/01/2016 01:12
Chloroethane	ND	0.0050	1	10/01/2016 01:12
Chloroform	ND	0.0050	1	10/01/2016 01:12
Chloromethane	ND	0.0050	1	10/01/2016 01:12
2-Chlorotoluene	ND	0.0050	1	10/01/2016 01:12
4-Chlorotoluene	ND	0.0050	1	10/01/2016 01:12
Dibromochloromethane	ND	0.0050	1	10/01/2016 01:12
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 01:12
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 01:12
Dibromomethane	ND	0.0050	1	10/01/2016 01:12
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:12
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:12
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:12
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 01:12
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 01:12
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 01:12
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 01:12
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 01:12
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 01:12
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 01:12
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 01:12
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 01:12

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	**1609B80-011A**	**Soil**	**09/26/2016 12:15**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 01:12
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 01:12
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 01:12
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 01:12
Ethylbenzene	ND	0.0050	1	10/01/2016 01:12
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 01:12
Freon 113	ND	0.0050	1	10/01/2016 01:12
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 01:12
Hexachloroethane	ND	0.0050	1	10/01/2016 01:12
2-Hexanone	ND	0.0050	1	10/01/2016 01:12
Isopropylbenzene	ND	0.0050	1	10/01/2016 01:12
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 01:12
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 01:12
Methylene chloride	ND	0.0050	1	10/01/2016 01:12
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 01:12
Naphthalene	ND	0.0050	1	10/01/2016 01:12
n-Propyl benzene	ND	0.0050	1	10/01/2016 01:12
Styrene	ND	0.0050	1	10/01/2016 01:12
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 01:12
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 01:12
Tetrachloroethene	ND	0.0050	1	10/01/2016 01:12
Toluene	ND	0.0050	1	10/01/2016 01:12
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 01:12
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 01:12
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 01:12
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 01:12
Trichloroethene	ND	0.0050	1	10/01/2016 01:12
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 01:12
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 01:12
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 01:12
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 01:12
Vinyl Chloride	ND	0.0050	1	10/01/2016 01:12
Xylenes, Total	ND	0.0050	1	10/01/2016 01:12

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	1609B80-011A	Soil	09/26/2016 12:15	GC18	127158

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 01:12
Toluene-d8	109	70-130		10/01/2016 01:12
4-BFB	89	70-130		10/01/2016 01:12
Benzene-d6	87	60-140		10/01/2016 01:12
Ethylbenzene-d10	103	60-140		10/01/2016 01:12
1,2-DCB-d4	75	60-140		10/01/2016 01:12

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	**1609B80-012A**	**Soil**	**09/26/2016 13:00**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 01:51
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 01:51
Benzene	ND	0.0050	1	10/01/2016 01:51
Bromobenzene	ND	0.0050	1	10/01/2016 01:51
Bromochloromethane	ND	0.0050	1	10/01/2016 01:51
Bromodichloromethane	ND	0.0050	1	10/01/2016 01:51
Bromoform	ND	0.0050	1	10/01/2016 01:51
Bromomethane	ND	0.0050	1	10/01/2016 01:51
2-Butanone (MEK)	ND	0.020	1	10/01/2016 01:51
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 01:51
n-Butyl benzene	ND	0.0050	1	10/01/2016 01:51
sec-Butyl benzene	ND	0.0050	1	10/01/2016 01:51
tert-Butyl benzene	ND	0.0050	1	10/01/2016 01:51
Carbon Disulfide	ND	0.0050	1	10/01/2016 01:51
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 01:51
Chlorobenzene	ND	0.0050	1	10/01/2016 01:51
Chloroethane	ND	0.0050	1	10/01/2016 01:51
Chloroform	ND	0.0050	1	10/01/2016 01:51
Chloromethane	ND	0.0050	1	10/01/2016 01:51
2-Chlorotoluene	ND	0.0050	1	10/01/2016 01:51
4-Chlorotoluene	ND	0.0050	1	10/01/2016 01:51
Dibromochloromethane	ND	0.0050	1	10/01/2016 01:51
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 01:51
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 01:51
Dibromomethane	ND	0.0050	1	10/01/2016 01:51
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:51
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:51
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 01:51
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 01:51
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 01:51
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 01:51
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 01:51
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 01:51
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 01:51
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 01:51
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 01:51
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 01:51

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	**1609B80-012A**	**Soil**	**09/26/2016 13:00**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 01:51
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 01:51
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 01:51
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 01:51
Ethylbenzene	ND	0.0050	1	10/01/2016 01:51
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 01:51
Freon 113	ND	0.0050	1	10/01/2016 01:51
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 01:51
Hexachloroethane	ND	0.0050	1	10/01/2016 01:51
2-Hexanone	ND	0.0050	1	10/01/2016 01:51
Isopropylbenzene	ND	0.0050	1	10/01/2016 01:51
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 01:51
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 01:51
Methylene chloride	ND	0.0050	1	10/01/2016 01:51
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 01:51
Naphthalene	ND	0.0050	1	10/01/2016 01:51
n-Propyl benzene	ND	0.0050	1	10/01/2016 01:51
Styrene	ND	0.0050	1	10/01/2016 01:51
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 01:51
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 01:51
Tetrachloroethene	ND	0.0050	1	10/01/2016 01:51
Toluene	ND	0.0050	1	10/01/2016 01:51
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 01:51
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 01:51
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 01:51
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 01:51
Trichloroethene	ND	0.0050	1	10/01/2016 01:51
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 01:51
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 01:51
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 01:51
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 01:51
Vinyl Chloride	ND	0.0050	1	10/01/2016 01:51
Xylenes, Total	ND	0.0050	1	10/01/2016 01:51

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	**1609B80-012A**	**Soil**	**09/26/2016 13:00**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 01:51
Toluene-d8	110	70-130		10/01/2016 01:51
4-BFB	88	70-130		10/01/2016 01:51
Benzene-d6	92	60-140		10/01/2016 01:51
Ethylbenzene-d10	109	60-140		10/01/2016 01:51
1,2-DCB-d4	78	60-140		10/01/2016 01:51

Analyst(s): AK

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 02:29
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 02:29
Benzene	ND	0.0050	1	10/01/2016 02:29
Bromobenzene	ND	0.0050	1	10/01/2016 02:29
Bromochloromethane	ND	0.0050	1	10/01/2016 02:29
Bromodichloromethane	ND	0.0050	1	10/01/2016 02:29
Bromoform	ND	0.0050	1	10/01/2016 02:29
Bromomethane	ND	0.0050	1	10/01/2016 02:29
2-Butanone (MEK)	ND	0.020	1	10/01/2016 02:29
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 02:29
n-Butyl benzene	ND	0.0050	1	10/01/2016 02:29
sec-Butyl benzene	ND	0.0050	1	10/01/2016 02:29
tert-Butyl benzene	ND	0.0050	1	10/01/2016 02:29
Carbon Disulfide	ND	0.0050	1	10/01/2016 02:29
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 02:29
Chlorobenzene	ND	0.0050	1	10/01/2016 02:29
Chloroethane	ND	0.0050	1	10/01/2016 02:29
Chloroform	ND	0.0050	1	10/01/2016 02:29
Chloromethane	ND	0.0050	1	10/01/2016 02:29
2-Chlorotoluene	ND	0.0050	1	10/01/2016 02:29
4-Chlorotoluene	ND	0.0050	1	10/01/2016 02:29
Dibromochloromethane	ND	0.0050	1	10/01/2016 02:29
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 02:29
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 02:29
Dibromomethane	ND	0.0050	1	10/01/2016 02:29
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 02:29
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 02:29
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 02:29
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 02:29
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 02:29
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 02:29
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 02:29
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 02:29
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 02:29
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 02:29
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 02:29
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 02:29

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 9/27/16
Project: SCUWD-IPR

WorkOrder: 1609B80
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 02:29
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 02:29
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 02:29
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 02:29
Ethylbenzene	ND	0.0050	1	10/01/2016 02:29
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 02:29
Freon 113	ND	0.0050	1	10/01/2016 02:29
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 02:29
Hexachloroethane	ND	0.0050	1	10/01/2016 02:29
2-Hexanone	ND	0.0050	1	10/01/2016 02:29
Isopropylbenzene	ND	0.0050	1	10/01/2016 02:29
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 02:29
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 02:29
Methylene chloride	ND	0.0050	1	10/01/2016 02:29
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 02:29
Naphthalene	ND	0.0050	1	10/01/2016 02:29
n-Propyl benzene	ND	0.0050	1	10/01/2016 02:29
Styrene	ND	0.0050	1	10/01/2016 02:29
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 02:29
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 02:29
Tetrachloroethene	ND	0.0050	1	10/01/2016 02:29
Toluene	ND	0.0050	1	10/01/2016 02:29
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 02:29
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 02:29
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 02:29
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 02:29
Trichloroethene	ND	0.0050	1	10/01/2016 02:29
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 02:29
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 02:29
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 02:29
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 02:29
Vinyl Chloride	ND	0.0050	1	10/01/2016 02:29
Xylenes, Total	ND	0.0050	1	10/01/2016 02:29

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 02:29
Toluene-d8	110	70-130		10/01/2016 02:29
4-BFB	87	70-130		10/01/2016 02:29
Benzene-d6	91	60-140		10/01/2016 02:29
Ethylbenzene-d10	107	60-140		10/01/2016 02:29
1,2-DCB-d4	77	60-140		10/01/2016 02:29

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	**1609B80-018A**	**Soil**	**09/26/2016 15:15**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 03:08
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 03:08
Benzene	ND	0.0050	1	10/01/2016 03:08
Bromobenzene	ND	0.0050	1	10/01/2016 03:08
Bromochloromethane	ND	0.0050	1	10/01/2016 03:08
Bromodichloromethane	ND	0.0050	1	10/01/2016 03:08
Bromoform	ND	0.0050	1	10/01/2016 03:08
Bromomethane	ND	0.0050	1	10/01/2016 03:08
2-Butanone (MEK)	ND	0.020	1	10/01/2016 03:08
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 03:08
n-Butyl benzene	ND	0.0050	1	10/01/2016 03:08
sec-Butyl benzene	ND	0.0050	1	10/01/2016 03:08
tert-Butyl benzene	ND	0.0050	1	10/01/2016 03:08
Carbon Disulfide	ND	0.0050	1	10/01/2016 03:08
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 03:08
Chlorobenzene	ND	0.0050	1	10/01/2016 03:08
Chloroethane	ND	0.0050	1	10/01/2016 03:08
Chloroform	ND	0.0050	1	10/01/2016 03:08
Chloromethane	ND	0.0050	1	10/01/2016 03:08
2-Chlorotoluene	ND	0.0050	1	10/01/2016 03:08
4-Chlorotoluene	ND	0.0050	1	10/01/2016 03:08
Dibromochloromethane	ND	0.0050	1	10/01/2016 03:08
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 03:08
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 03:08
Dibromomethane	ND	0.0050	1	10/01/2016 03:08
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:08
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:08
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:08
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 03:08
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 03:08
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 03:08
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 03:08
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 03:08
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 03:08
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 03:08
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 03:08
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 03:08

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	**1609B80-018A**	**Soil**	**09/26/2016 15:15**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 03:08
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 03:08
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 03:08
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 03:08
Ethylbenzene	ND	0.0050	1	10/01/2016 03:08
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 03:08
Freon 113	ND	0.0050	1	10/01/2016 03:08
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 03:08
Hexachloroethane	ND	0.0050	1	10/01/2016 03:08
2-Hexanone	ND	0.0050	1	10/01/2016 03:08
Isopropylbenzene	ND	0.0050	1	10/01/2016 03:08
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 03:08
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 03:08
Methylene chloride	ND	0.0050	1	10/01/2016 03:08
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 03:08
Naphthalene	ND	0.0050	1	10/01/2016 03:08
n-Propyl benzene	ND	0.0050	1	10/01/2016 03:08
Styrene	ND	0.0050	1	10/01/2016 03:08
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 03:08
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 03:08
Tetrachloroethene	ND	0.0050	1	10/01/2016 03:08
Toluene	ND	0.0050	1	10/01/2016 03:08
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 03:08
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 03:08
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 03:08
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 03:08
Trichloroethene	ND	0.0050	1	10/01/2016 03:08
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 03:08
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 03:08
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 03:08
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 03:08
Vinyl Chloride	ND	0.0050	1	10/01/2016 03:08
Xylenes, Total	ND	0.0050	1	10/01/2016 03:08

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	**1609B80-018A**	**Soil**	**09/26/2016 15:15**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 03:08
Toluene-d8	108	70-130		10/01/2016 03:08
4-BFB	89	70-130		10/01/2016 03:08
Benzene-d6	87	60-140		10/01/2016 03:08
Ethylbenzene-d10	104	60-140		10/01/2016 03:08
1,2-DCB-d4	73	60-140		10/01/2016 03:08

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 03:47
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 03:47
Benzene	ND	0.0050	1	10/01/2016 03:47
Bromobenzene	ND	0.0050	1	10/01/2016 03:47
Bromochloromethane	ND	0.0050	1	10/01/2016 03:47
Bromodichloromethane	ND	0.0050	1	10/01/2016 03:47
Bromoform	ND	0.0050	1	10/01/2016 03:47
Bromomethane	ND	0.0050	1	10/01/2016 03:47
2-Butanone (MEK)	ND	0.020	1	10/01/2016 03:47
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 03:47
n-Butyl benzene	ND	0.0050	1	10/01/2016 03:47
sec-Butyl benzene	ND	0.0050	1	10/01/2016 03:47
tert-Butyl benzene	ND	0.0050	1	10/01/2016 03:47
Carbon Disulfide	ND	0.0050	1	10/01/2016 03:47
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 03:47
Chlorobenzene	ND	0.0050	1	10/01/2016 03:47
Chloroethane	ND	0.0050	1	10/01/2016 03:47
Chloroform	ND	0.0050	1	10/01/2016 03:47
Chloromethane	ND	0.0050	1	10/01/2016 03:47
2-Chlorotoluene	ND	0.0050	1	10/01/2016 03:47
4-Chlorotoluene	ND	0.0050	1	10/01/2016 03:47
Dibromochloromethane	ND	0.0050	1	10/01/2016 03:47
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 03:47
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 03:47
Dibromomethane	ND	0.0050	1	10/01/2016 03:47
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:47
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:47
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 03:47
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 03:47
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 03:47
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 03:47
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 03:47
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 03:47
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 03:47
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 03:47
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 03:47
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 03:47

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 03:47
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 03:47
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 03:47
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 03:47
Ethylbenzene	ND	0.0050	1	10/01/2016 03:47
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 03:47
Freon 113	ND	0.0050	1	10/01/2016 03:47
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 03:47
Hexachloroethane	ND	0.0050	1	10/01/2016 03:47
2-Hexanone	ND	0.0050	1	10/01/2016 03:47
Isopropylbenzene	ND	0.0050	1	10/01/2016 03:47
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 03:47
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 03:47
Methylene chloride	ND	0.0050	1	10/01/2016 03:47
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 03:47
Naphthalene	ND	0.0050	1	10/01/2016 03:47
n-Propyl benzene	ND	0.0050	1	10/01/2016 03:47
Styrene	ND	0.0050	1	10/01/2016 03:47
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 03:47
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 03:47
Tetrachloroethene	ND	0.0050	1	10/01/2016 03:47
Toluene	ND	0.0050	1	10/01/2016 03:47
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 03:47
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 03:47
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 03:47
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 03:47
Trichloroethene	ND	0.0050	1	10/01/2016 03:47
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 03:47
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 03:47
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 03:47
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 03:47
Vinyl Chloride	ND	0.0050	1	10/01/2016 03:47
Xylenes, Total	ND	0.0050	1	10/01/2016 03:47

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 03:47
Toluene-d8	109	70-130		10/01/2016 03:47
4-BFB	85	70-130		10/01/2016 03:47
Benzene-d6	92	60-140		10/01/2016 03:47
Ethylbenzene-d10	109	60-140		10/01/2016 03:47
1,2-DCB-d4	78	60-140		10/01/2016 03:47

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	**1609B80-020A**	**Soil**	**09/26/2016 15:32**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 04:25
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 04:25
Benzene	ND	0.0050	1	10/01/2016 04:25
Bromobenzene	ND	0.0050	1	10/01/2016 04:25
Bromochloromethane	ND	0.0050	1	10/01/2016 04:25
Bromodichloromethane	ND	0.0050	1	10/01/2016 04:25
Bromoform	ND	0.0050	1	10/01/2016 04:25
Bromomethane	ND	0.0050	1	10/01/2016 04:25
2-Butanone (MEK)	ND	0.020	1	10/01/2016 04:25
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 04:25
n-Butyl benzene	ND	0.0050	1	10/01/2016 04:25
sec-Butyl benzene	ND	0.0050	1	10/01/2016 04:25
tert-Butyl benzene	ND	0.0050	1	10/01/2016 04:25
Carbon Disulfide	ND	0.0050	1	10/01/2016 04:25
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 04:25
Chlorobenzene	ND	0.0050	1	10/01/2016 04:25
Chloroethane	ND	0.0050	1	10/01/2016 04:25
Chloroform	ND	0.0050	1	10/01/2016 04:25
Chloromethane	ND	0.0050	1	10/01/2016 04:25
2-Chlorotoluene	ND	0.0050	1	10/01/2016 04:25
4-Chlorotoluene	ND	0.0050	1	10/01/2016 04:25
Dibromochloromethane	ND	0.0050	1	10/01/2016 04:25
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 04:25
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 04:25
Dibromomethane	ND	0.0050	1	10/01/2016 04:25
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 04:25
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 04:25
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 04:25
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 04:25
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 04:25
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 04:25
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 04:25
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 04:25
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 04:25
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 04:25
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 04:25
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 04:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	**1609B80-020A**	**Soil**	**09/26/2016 15:32**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 04:25
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 04:25
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 04:25
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 04:25
Ethylbenzene	ND	0.0050	1	10/01/2016 04:25
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 04:25
Freon 113	ND	0.0050	1	10/01/2016 04:25
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 04:25
Hexachloroethane	ND	0.0050	1	10/01/2016 04:25
2-Hexanone	ND	0.0050	1	10/01/2016 04:25
Isopropylbenzene	ND	0.0050	1	10/01/2016 04:25
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 04:25
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 04:25
Methylene chloride	ND	0.0050	1	10/01/2016 04:25
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 04:25
Naphthalene	ND	0.0050	1	10/01/2016 04:25
n-Propyl benzene	ND	0.0050	1	10/01/2016 04:25
Styrene	ND	0.0050	1	10/01/2016 04:25
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 04:25
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 04:25
Tetrachloroethene	ND	0.0050	1	10/01/2016 04:25
Toluene	ND	0.0050	1	10/01/2016 04:25
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 04:25
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 04:25
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 04:25
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 04:25
Trichloroethene	ND	0.0050	1	10/01/2016 04:25
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 04:25
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 04:25
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 04:25
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 04:25
Vinyl Chloride	ND	0.0050	1	10/01/2016 04:25
Xylenes, Total	ND	0.0050	1	10/01/2016 04:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	**1609B80-020A**	**Soil**	**09/26/2016 15:32**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 04:25
Toluene-d8	110	70-130		10/01/2016 04:25
4-BFB	84	70-130		10/01/2016 04:25
Benzene-d6	90	60-140		10/01/2016 04:25
Ethylbenzene-d10	104	60-140		10/01/2016 04:25
1,2-DCB-d4	76	60-140		10/01/2016 04:25

Analyst(s): AK

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 9/27/16
Project: SCUWD-IPR

WorkOrder: 1609B80
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	**1609B80-021A**	**Soil**	**09/26/2016 16:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 05:04
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 05:04
Benzene	ND	0.0050	1	10/01/2016 05:04
Bromobenzene	ND	0.0050	1	10/01/2016 05:04
Bromochloromethane	ND	0.0050	1	10/01/2016 05:04
Bromodichloromethane	ND	0.0050	1	10/01/2016 05:04
Bromoform	ND	0.0050	1	10/01/2016 05:04
Bromomethane	ND	0.0050	1	10/01/2016 05:04
2-Butanone (MEK)	ND	0.020	1	10/01/2016 05:04
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 05:04
n-Butyl benzene	ND	0.0050	1	10/01/2016 05:04
sec-Butyl benzene	ND	0.0050	1	10/01/2016 05:04
tert-Butyl benzene	ND	0.0050	1	10/01/2016 05:04
Carbon Disulfide	ND	0.0050	1	10/01/2016 05:04
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 05:04
Chlorobenzene	ND	0.0050	1	10/01/2016 05:04
Chloroethane	ND	0.0050	1	10/01/2016 05:04
Chloroform	ND	0.0050	1	10/01/2016 05:04
Chloromethane	ND	0.0050	1	10/01/2016 05:04
2-Chlorotoluene	ND	0.0050	1	10/01/2016 05:04
4-Chlorotoluene	ND	0.0050	1	10/01/2016 05:04
Dibromochloromethane	ND	0.0050	1	10/01/2016 05:04
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 05:04
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 05:04
Dibromomethane	ND	0.0050	1	10/01/2016 05:04
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 05:04
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 05:04
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 05:04
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 05:04
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 05:04
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 05:04
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 05:04
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 05:04
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 05:04
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 05:04
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 05:04
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 05:04

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	**1609B80-021A**	**Soil**	**09/26/2016 16:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 05:04
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 05:04
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 05:04
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 05:04
Ethylbenzene	ND	0.0050	1	10/01/2016 05:04
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 05:04
Freon 113	ND	0.0050	1	10/01/2016 05:04
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 05:04
Hexachloroethane	ND	0.0050	1	10/01/2016 05:04
2-Hexanone	ND	0.0050	1	10/01/2016 05:04
Isopropylbenzene	ND	0.0050	1	10/01/2016 05:04
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 05:04
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 05:04
Methylene chloride	ND	0.0050	1	10/01/2016 05:04
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 05:04
Naphthalene	ND	0.0050	1	10/01/2016 05:04
n-Propyl benzene	ND	0.0050	1	10/01/2016 05:04
Styrene	ND	0.0050	1	10/01/2016 05:04
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 05:04
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 05:04
Tetrachloroethene	ND	0.0050	1	10/01/2016 05:04
Toluene	ND	0.0050	1	10/01/2016 05:04
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 05:04
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 05:04
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 05:04
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 05:04
Trichloroethene	ND	0.0050	1	10/01/2016 05:04
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 05:04
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 05:04
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 05:04
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 05:04
Vinyl Chloride	ND	0.0050	1	10/01/2016 05:04
Xylenes, Total	ND	0.0050	1	10/01/2016 05:04

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/27/16	**Analytical Method:**	SW8260B
Project:	SCUWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	**1609B80-021A**	**Soil**	**09/26/2016 16:10**	**GC18**	**127158**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 05:04
Toluene-d8	108	70-130		10/01/2016 05:04
4-BFB	88	70-130		10/01/2016 05:04
Benzene-d6	88	60-140		10/01/2016 05:04
Ethylbenzene-d10	103	60-140		10/01/2016 05:04
1,2-DCB-d4	75	60-140		10/01/2016 05:04

Analyst(s): AK

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 00:36
Acenaphthylene	ND	0.25	1	09/30/2016 00:36
Acetochlor	ND	0.25	1	09/30/2016 00:36
Anthracene	ND	0.25	1	09/30/2016 00:36
Benzidine	ND	1.3	1	09/30/2016 00:36
Benzo (a) anthracene	ND	0.25	1	09/30/2016 00:36
Benzo (a) pyrene	ND	0.25	1	09/30/2016 00:36
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 00:36
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 00:36
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 00:36
Benzyl Alcohol	ND	1.3	1	09/30/2016 00:36
1,1-Biphenyl	ND	0.25	1	09/30/2016 00:36
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 00:36
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 00:36
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 00:36
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 00:36
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 00:36
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 00:36
Butylbenzyl Phthalate	**1.9**	0.25	1	09/30/2016 00:36
4-Chloroaniline	ND	0.50	1	09/30/2016 00:36
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 00:36
2-Chloronaphthalene	ND	0.25	1	09/30/2016 00:36
2-Chlorophenol	ND	0.25	1	09/30/2016 00:36
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 00:36
Chrysene	ND	0.25	1	09/30/2016 00:36
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 00:36
Dibenzofuran	ND	0.25	1	09/30/2016 00:36
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 00:36
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 00:36
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 00:36
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 00:36
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 00:36
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 00:36
Diethyl Phthalate	ND	0.25	1	09/30/2016 00:36
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 00:36
Dimethyl Phthalate	ND	0.25	1	09/30/2016 00:36
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 00:36

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 00:36
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 00:36
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 00:36
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 00:36
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 00:36
Fluoranthene	ND	0.25	1	09/30/2016 00:36
Fluorene	ND	0.25	1	09/30/2016 00:36
Hexachlorobenzene	ND	0.25	1	09/30/2016 00:36
Hexachlorobutadiene	ND	0.25	1	09/30/2016 00:36
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 00:36
Hexachloroethane	ND	0.25	1	09/30/2016 00:36
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 00:36
Isophorone	ND	0.25	1	09/30/2016 00:36
2-Methylnaphthalene	ND	0.25	1	09/30/2016 00:36
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 00:36
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 00:36
Naphthalene	ND	0.25	1	09/30/2016 00:36
2-Nitroaniline	ND	1.3	1	09/30/2016 00:36
3-Nitroaniline	ND	1.3	1	09/30/2016 00:36
4-Nitroaniline	ND	1.3	1	09/30/2016 00:36
Nitrobenzene	ND	0.25	1	09/30/2016 00:36
2-Nitrophenol	ND	1.3	1	09/30/2016 00:36
4-Nitrophenol	ND	1.3	1	09/30/2016 00:36
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 00:36
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 00:36
Pentachlorophenol	ND	1.3	1	09/30/2016 00:36
Phenanthrene	ND	0.25	1	09/30/2016 00:36
Phenol	ND	0.25	1	09/30/2016 00:36
Pyrene	ND	0.25	1	09/30/2016 00:36
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 00:36
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 00:36
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 00:36

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 12.5-13.0	**1609B80-008A**	**Soil**	**09/26/2016 11:10**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	118	30-130		09/30/2016 00:36
Phenol-d5	110	30-130		09/30/2016 00:36
Nitrobenzene-d5	104	30-130		09/30/2016 00:36
2-Fluorobiphenyl	103	30-130		09/30/2016 00:36
2,4,6-Tribromophenol	74	16-130		09/30/2016 00:36
4-Terphenyl-d14	114	30-130		09/30/2016 00:36

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	1609B80-009A	Soil	09/26/2016 11:25	GC21	127238

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 01:04
Acenaphthylene	ND	0.25	1	09/30/2016 01:04
Acetochlor	ND	0.25	1	09/30/2016 01:04
Anthracene	ND	0.25	1	09/30/2016 01:04
Benzidine	ND	1.3	1	09/30/2016 01:04
Benzo (a) anthracene	ND	0.25	1	09/30/2016 01:04
Benzo (a) pyrene	ND	0.25	1	09/30/2016 01:04
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 01:04
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 01:04
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 01:04
Benzyl Alcohol	ND	1.3	1	09/30/2016 01:04
1,1-Biphenyl	ND	0.25	1	09/30/2016 01:04
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 01:04
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 01:04
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 01:04
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 01:04
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 01:04
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:04
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 01:04
4-Chloroaniline	ND	0.50	1	09/30/2016 01:04
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 01:04
2-Chloronaphthalene	ND	0.25	1	09/30/2016 01:04
2-Chlorophenol	ND	0.25	1	09/30/2016 01:04
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:04
Chrysene	ND	0.25	1	09/30/2016 01:04
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 01:04
Dibenzofuran	ND	0.25	1	09/30/2016 01:04
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 01:04
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 01:04
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 01:04
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 01:04
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 01:04
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 01:04
Diethyl Phthalate	ND	0.25	1	09/30/2016 01:04
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 01:04
Dimethyl Phthalate	ND	0.25	1	09/30/2016 01:04
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 01:04

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	**1609B80-009A**	**Soil**	**09/26/2016 11:25**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 01:04
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 01:04
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 01:04
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 01:04
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 01:04
Fluoranthene	ND	0.25	1	09/30/2016 01:04
Fluorene	ND	0.25	1	09/30/2016 01:04
Hexachlorobenzene	ND	0.25	1	09/30/2016 01:04
Hexachlorobutadiene	ND	0.25	1	09/30/2016 01:04
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 01:04
Hexachloroethane	ND	0.25	1	09/30/2016 01:04
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 01:04
Isophorone	ND	0.25	1	09/30/2016 01:04
2-Methylnaphthalene	ND	0.25	1	09/30/2016 01:04
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 01:04
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 01:04
Naphthalene	ND	0.25	1	09/30/2016 01:04
2-Nitroaniline	ND	1.3	1	09/30/2016 01:04
3-Nitroaniline	ND	1.3	1	09/30/2016 01:04
4-Nitroaniline	ND	1.3	1	09/30/2016 01:04
Nitrobenzene	ND	0.25	1	09/30/2016 01:04
2-Nitrophenol	ND	1.3	1	09/30/2016 01:04
4-Nitrophenol	ND	1.3	1	09/30/2016 01:04
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 01:04
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 01:04
Pentachlorophenol	ND	1.3	1	09/30/2016 01:04
Phenanthrene	ND	0.25	1	09/30/2016 01:04
Phenol	ND	0.25	1	09/30/2016 01:04
Pyrene	ND	0.25	1	09/30/2016 01:04
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 01:04
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 01:04
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 01:04

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 18.0-18.5	**1609B80-009A**	**Soil**	**09/26/2016 11:25**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	106	30-130		09/30/2016 01:04
Phenol-d5	96	30-130		09/30/2016 01:04
Nitrobenzene-d5	97	30-130		09/30/2016 01:04
2-Fluorobiphenyl	95	30-130		09/30/2016 01:04
2,4,6-Tribromophenol	71	16-130		09/30/2016 01:04
4-Terphenyl-d14	103	30-130		09/30/2016 01:04

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 01:31
Acenaphthylene	ND	0.25	1	09/30/2016 01:31
Acetochlor	ND	0.25	1	09/30/2016 01:31
Anthracene	ND	0.25	1	09/30/2016 01:31
Benzidine	ND	1.3	1	09/30/2016 01:31
Benzo (a) anthracene	ND	0.25	1	09/30/2016 01:31
Benzo (a) pyrene	ND	0.25	1	09/30/2016 01:31
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 01:31
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 01:31
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 01:31
Benzyl Alcohol	ND	1.3	1	09/30/2016 01:31
1,1-Biphenyl	ND	0.25	1	09/30/2016 01:31
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 01:31
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 01:31
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 01:31
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 01:31
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 01:31
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:31
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 01:31
4-Chloroaniline	ND	0.50	1	09/30/2016 01:31
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 01:31
2-Chloronaphthalene	ND	0.25	1	09/30/2016 01:31
2-Chlorophenol	ND	0.25	1	09/30/2016 01:31
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:31
Chrysene	ND	0.25	1	09/30/2016 01:31
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 01:31
Dibenzofuran	ND	0.25	1	09/30/2016 01:31
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 01:31
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 01:31
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 01:31
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 01:31
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 01:31
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 01:31
Diethyl Phthalate	ND	0.25	1	09/30/2016 01:31
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 01:31
Dimethyl Phthalate	ND	0.25	1	09/30/2016 01:31
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 01:31

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 01:31
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 01:31
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 01:31
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 01:31
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 01:31
Fluoranthene	ND	0.25	1	09/30/2016 01:31
Fluorene	ND	0.25	1	09/30/2016 01:31
Hexachlorobenzene	ND	0.25	1	09/30/2016 01:31
Hexachlorobutadiene	ND	0.25	1	09/30/2016 01:31
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 01:31
Hexachloroethane	ND	0.25	1	09/30/2016 01:31
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 01:31
Isophorone	ND	0.25	1	09/30/2016 01:31
2-Methylnaphthalene	ND	0.25	1	09/30/2016 01:31
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 01:31
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 01:31
Naphthalene	ND	0.25	1	09/30/2016 01:31
2-Nitroaniline	ND	1.3	1	09/30/2016 01:31
3-Nitroaniline	ND	1.3	1	09/30/2016 01:31
4-Nitroaniline	ND	1.3	1	09/30/2016 01:31
Nitrobenzene	ND	0.25	1	09/30/2016 01:31
2-Nitrophenol	ND	1.3	1	09/30/2016 01:31
4-Nitrophenol	ND	1.3	1	09/30/2016 01:31
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 01:31
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 01:31
Pentachlorophenol	ND	1.3	1	09/30/2016 01:31
Phenanthrene	ND	0.25	1	09/30/2016 01:31
Phenol	ND	0.25	1	09/30/2016 01:31
Pyrene	ND	0.25	1	09/30/2016 01:31
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 01:31
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 01:31
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 01:31

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 24.0-24.5	**1609B80-010A**	**Soil**	**09/26/2016 11:50**	**GC21**	**127238**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	112	30-130		09/30/2016 01:31
Phenol-d5	103	30-130		09/30/2016 01:31
Nitrobenzene-d5	99	30-130		09/30/2016 01:31
2-Fluorobiphenyl	96	30-130		09/30/2016 01:31
2,4,6-Tribromophenol	71	16-130		09/30/2016 01:31
4-Terphenyl-d14	107	30-130		09/30/2016 01:31

Analyst(s): REB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	1609B80-011A	Soil	09/26/2016 12:15	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 01:58
Acenaphthylene	ND	0.25	1	09/30/2016 01:58
Acetochlor	ND	0.25	1	09/30/2016 01:58
Anthracene	ND	0.25	1	09/30/2016 01:58
Benzidine	ND	1.3	1	09/30/2016 01:58
Benzo (a) anthracene	ND	0.25	1	09/30/2016 01:58
Benzo (a) pyrene	ND	0.25	1	09/30/2016 01:58
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 01:58
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 01:58
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 01:58
Benzyl Alcohol	ND	1.3	1	09/30/2016 01:58
1,1-Biphenyl	ND	0.25	1	09/30/2016 01:58
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 01:58
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 01:58
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 01:58
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 01:58
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 01:58
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:58
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 01:58
4-Chloroaniline	ND	0.50	1	09/30/2016 01:58
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 01:58
2-Chloronaphthalene	ND	0.25	1	09/30/2016 01:58
2-Chlorophenol	ND	0.25	1	09/30/2016 01:58
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 01:58
Chrysene	ND	0.25	1	09/30/2016 01:58
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 01:58
Dibenzofuran	ND	0.25	1	09/30/2016 01:58
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 01:58
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 01:58
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 01:58
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 01:58
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 01:58
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 01:58
Diethyl Phthalate	ND	0.25	1	09/30/2016 01:58
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 01:58
Dimethyl Phthalate	ND	0.25	1	09/30/2016 01:58
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 01:58

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	**1609B80-011A**	**Soil**	**09/26/2016 12:15**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 01:58
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 01:58
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 01:58
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 01:58
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 01:58
Fluoranthene	ND	0.25	1	09/30/2016 01:58
Fluorene	ND	0.25	1	09/30/2016 01:58
Hexachlorobenzene	ND	0.25	1	09/30/2016 01:58
Hexachlorobutadiene	ND	0.25	1	09/30/2016 01:58
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 01:58
Hexachloroethane	ND	0.25	1	09/30/2016 01:58
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 01:58
Isophorone	ND	0.25	1	09/30/2016 01:58
2-Methylnaphthalene	ND	0.25	1	09/30/2016 01:58
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 01:58
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 01:58
Naphthalene	ND	0.25	1	09/30/2016 01:58
2-Nitroaniline	ND	1.3	1	09/30/2016 01:58
3-Nitroaniline	ND	1.3	1	09/30/2016 01:58
4-Nitroaniline	ND	1.3	1	09/30/2016 01:58
Nitrobenzene	ND	0.25	1	09/30/2016 01:58
2-Nitrophenol	ND	1.3	1	09/30/2016 01:58
4-Nitrophenol	ND	1.3	1	09/30/2016 01:58
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 01:58
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 01:58
Pentachlorophenol	ND	1.3	1	09/30/2016 01:58
Phenanthrene	ND	0.25	1	09/30/2016 01:58
Phenol	ND	0.25	1	09/30/2016 01:58
Pyrene	ND	0.25	1	09/30/2016 01:58
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 01:58
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 01:58
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 01:58

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 28.0-28.5'	**1609B80-011A**	**Soil**	**09/26/2016 12:15**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	111	30-130		09/30/2016 01:58
Phenol-d5	100	30-130		09/30/2016 01:58
Nitrobenzene-d5	95	30-130		09/30/2016 01:58
2-Fluorobiphenyl	97	30-130		09/30/2016 01:58
2,4,6-Tribromophenol	69	16-130		09/30/2016 01:58
4-Terphenyl-d14	103	30-130		09/30/2016 01:58

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	1609B80-012A	Soil	09/26/2016 13:00	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 02:25
Acenaphthylene	ND	0.25	1	09/30/2016 02:25
Acetochlor	ND	0.25	1	09/30/2016 02:25
Anthracene	ND	0.25	1	09/30/2016 02:25
Benzidine	ND	1.3	1	09/30/2016 02:25
Benzo (a) anthracene	ND	0.25	1	09/30/2016 02:25
Benzo (a) pyrene	ND	0.25	1	09/30/2016 02:25
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 02:25
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 02:25
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 02:25
Benzyl Alcohol	ND	1.3	1	09/30/2016 02:25
1,1-Biphenyl	ND	0.25	1	09/30/2016 02:25
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 02:25
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 02:25
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 02:25
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 02:25
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 02:25
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 02:25
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 02:25
4-Chloroaniline	ND	0.50	1	09/30/2016 02:25
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 02:25
2-Chloronaphthalene	ND	0.25	1	09/30/2016 02:25
2-Chlorophenol	ND	0.25	1	09/30/2016 02:25
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 02:25
Chrysene	ND	0.25	1	09/30/2016 02:25
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 02:25
Dibenzofuran	ND	0.25	1	09/30/2016 02:25
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 02:25
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 02:25
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 02:25
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 02:25
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 02:25
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 02:25
Diethyl Phthalate	ND	0.25	1	09/30/2016 02:25
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 02:25
Dimethyl Phthalate	ND	0.25	1	09/30/2016 02:25
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 02:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	1609B80-012A	Soil	09/26/2016 13:00	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 02:25
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 02:25
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 02:25
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 02:25
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 02:25
Fluoranthene	ND	0.25	1	09/30/2016 02:25
Fluorene	ND	0.25	1	09/30/2016 02:25
Hexachlorobenzene	ND	0.25	1	09/30/2016 02:25
Hexachlorobutadiene	ND	0.25	1	09/30/2016 02:25
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 02:25
Hexachloroethane	ND	0.25	1	09/30/2016 02:25
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 02:25
Isophorone	ND	0.25	1	09/30/2016 02:25
2-Methylnaphthalene	ND	0.25	1	09/30/2016 02:25
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 02:25
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 02:25
Naphthalene	ND	0.25	1	09/30/2016 02:25
2-Nitroaniline	ND	1.3	1	09/30/2016 02:25
3-Nitroaniline	ND	1.3	1	09/30/2016 02:25
4-Nitroaniline	ND	1.3	1	09/30/2016 02:25
Nitrobenzene	ND	0.25	1	09/30/2016 02:25
2-Nitrophenol	ND	1.3	1	09/30/2016 02:25
4-Nitrophenol	ND	1.3	1	09/30/2016 02:25
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 02:25
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 02:25
Pentachlorophenol	ND	1.3	1	09/30/2016 02:25
Phenanthrene	ND	0.25	1	09/30/2016 02:25
Phenol	ND	0.25	1	09/30/2016 02:25
Pyrene	ND	0.25	1	09/30/2016 02:25
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 02:25
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 02:25
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 02:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 32.5-33.5'	**1609B80-012A**	**Soil**	**09/26/2016 13:00**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	114	30-130		09/30/2016 02:25
Phenol-d5	103	30-130		09/30/2016 02:25
Nitrobenzene-d5	102	30-130		09/30/2016 02:25
2-Fluorobiphenyl	102	30-130		09/30/2016 02:25
2,4,6-Tribromophenol	76	16-130		09/30/2016 02:25
4-Terphenyl-d14	111	30-130		09/30/2016 02:25

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 02:52
Acenaphthylene	ND	0.25	1	09/30/2016 02:52
Acetochlor	ND	0.25	1	09/30/2016 02:52
Anthracene	ND	0.25	1	09/30/2016 02:52
Benzidine	ND	1.3	1	09/30/2016 02:52
Benzo (a) anthracene	ND	0.25	1	09/30/2016 02:52
Benzo (a) pyrene	ND	0.25	1	09/30/2016 02:52
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 02:52
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 02:52
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 02:52
Benzyl Alcohol	ND	1.3	1	09/30/2016 02:52
1,1-Biphenyl	ND	0.25	1	09/30/2016 02:52
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 02:52
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 02:52
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 02:52
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 02:52
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 02:52
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 02:52
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 02:52
4-Chloroaniline	ND	0.50	1	09/30/2016 02:52
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 02:52
2-Chloronaphthalene	ND	0.25	1	09/30/2016 02:52
2-Chlorophenol	ND	0.25	1	09/30/2016 02:52
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 02:52
Chrysene	ND	0.25	1	09/30/2016 02:52
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 02:52
Dibenzofuran	ND	0.25	1	09/30/2016 02:52
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 02:52
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 02:52
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 02:52
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 02:52
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 02:52
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 02:52
Diethyl Phthalate	ND	0.25	1	09/30/2016 02:52
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 02:52
Dimethyl Phthalate	ND	0.25	1	09/30/2016 02:52
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 02:52

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 02:52
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 02:52
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 02:52
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 02:52
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 02:52
Fluoranthene	ND	0.25	1	09/30/2016 02:52
Fluorene	ND	0.25	1	09/30/2016 02:52
Hexachlorobenzene	ND	0.25	1	09/30/2016 02:52
Hexachlorobutadiene	ND	0.25	1	09/30/2016 02:52
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 02:52
Hexachloroethane	ND	0.25	1	09/30/2016 02:52
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 02:52
Isophorone	ND	0.25	1	09/30/2016 02:52
2-Methylnaphthalene	ND	0.25	1	09/30/2016 02:52
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 02:52
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 02:52
Naphthalene	ND	0.25	1	09/30/2016 02:52
2-Nitroaniline	ND	1.3	1	09/30/2016 02:52
3-Nitroaniline	ND	1.3	1	09/30/2016 02:52
4-Nitroaniline	ND	1.3	1	09/30/2016 02:52
Nitrobenzene	ND	0.25	1	09/30/2016 02:52
2-Nitrophenol	ND	1.3	1	09/30/2016 02:52
4-Nitrophenol	ND	1.3	1	09/30/2016 02:52
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 02:52
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 02:52
Pentachlorophenol	ND	1.3	1	09/30/2016 02:52
Phenanthrene	ND	0.25	1	09/30/2016 02:52
Phenol	ND	0.25	1	09/30/2016 02:52
Pyrene	ND	0.25	1	09/30/2016 02:52
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 02:52
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 02:52
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 02:52

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 38.0-38.5'	**1609B80-013A**	**Soil**	**09/26/2016 13:30**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	108	30-130		09/30/2016 02:52
Phenol-d5	99	30-130		09/30/2016 02:52
Nitrobenzene-d5	98	30-130		09/30/2016 02:52
2-Fluorobiphenyl	96	30-130		09/30/2016 02:52
2,4,6-Tribromophenol	76	16-130		09/30/2016 02:52
4-Terphenyl-d14	107	30-130		09/30/2016 02:52

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	1609B80-018A	Soil	09/26/2016 15:15	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 14:16
Acenaphthylene	ND	0.25	1	09/30/2016 14:16
Acetochlor	ND	0.25	1	09/30/2016 14:16
Anthracene	ND	0.25	1	09/30/2016 14:16
Benzidine	ND	1.3	1	09/30/2016 14:16
Benzo (a) anthracene	ND	0.25	1	09/30/2016 14:16
Benzo (a) pyrene	ND	0.25	1	09/30/2016 14:16
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 14:16
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 14:16
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 14:16
Benzyl Alcohol	ND	1.3	1	09/30/2016 14:16
1,1-Biphenyl	ND	0.25	1	09/30/2016 14:16
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 14:16
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 14:16
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 14:16
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 14:16
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 14:16
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 14:16
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 14:16
4-Chloroaniline	ND	0.50	1	09/30/2016 14:16
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 14:16
2-Chloronaphthalene	ND	0.25	1	09/30/2016 14:16
2-Chlorophenol	ND	0.25	1	09/30/2016 14:16
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 14:16
Chrysene	ND	0.25	1	09/30/2016 14:16
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 14:16
Dibenzofuran	ND	0.25	1	09/30/2016 14:16
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 14:16
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 14:16
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 14:16
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 14:16
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 14:16
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 14:16
Diethyl Phthalate	ND	0.25	1	09/30/2016 14:16
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 14:16
Dimethyl Phthalate	ND	0.25	1	09/30/2016 14:16
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 14:16

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	1609B80-018A	Soil	09/26/2016 15:15	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 14:16
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 14:16
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 14:16
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 14:16
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 14:16
Fluoranthene	ND	0.25	1	09/30/2016 14:16
Fluorene	ND	0.25	1	09/30/2016 14:16
Hexachlorobenzene	ND	0.25	1	09/30/2016 14:16
Hexachlorobutadiene	ND	0.25	1	09/30/2016 14:16
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 14:16
Hexachloroethane	ND	0.25	1	09/30/2016 14:16
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 14:16
Isophorone	ND	0.25	1	09/30/2016 14:16
2-Methylnaphthalene	ND	0.25	1	09/30/2016 14:16
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 14:16
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 14:16
Naphthalene	ND	0.25	1	09/30/2016 14:16
2-Nitroaniline	ND	1.3	1	09/30/2016 14:16
3-Nitroaniline	ND	1.3	1	09/30/2016 14:16
4-Nitroaniline	ND	1.3	1	09/30/2016 14:16
Nitrobenzene	ND	0.25	1	09/30/2016 14:16
2-Nitrophenol	ND	1.3	1	09/30/2016 14:16
4-Nitrophenol	ND	1.3	1	09/30/2016 14:16
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 14:16
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 14:16
Pentachlorophenol	ND	1.3	1	09/30/2016 14:16
Phenanthrene	ND	0.25	1	09/30/2016 14:16
Phenol	ND	0.25	1	09/30/2016 14:16
Pyrene	ND	0.25	1	09/30/2016 14:16
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 14:16
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 14:16
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 14:16

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 8.0-9.0'	**1609B80-018A**	**Soil**	**09/26/2016 15:15**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	110	30-130		09/30/2016 14:16
Phenol-d5	101	30-130		09/30/2016 14:16
Nitrobenzene-d5	93	30-130		09/30/2016 14:16
2-Fluorobiphenyl	93	30-130		09/30/2016 14:16
2,4,6-Tribromophenol	68	16-130		09/30/2016 14:16
4-Terphenyl-d14	102	30-130		09/30/2016 14:16

Analyst(s): REB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 9/28/16
Project: SCUWD-IPR

WorkOrder: 1609B80
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 16:18
Acenaphthylene	ND	0.25	1	09/30/2016 16:18
Acetochlor	ND	0.25	1	09/30/2016 16:18
Anthracene	ND	0.25	1	09/30/2016 16:18
Benzidine	ND	1.3	1	09/30/2016 16:18
Benzo (a) anthracene	ND	0.25	1	09/30/2016 16:18
Benzo (a) pyrene	ND	0.25	1	09/30/2016 16:18
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 16:18
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 16:18
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 16:18
Benzyl Alcohol	ND	1.3	1	09/30/2016 16:18
1,1-Biphenyl	ND	0.25	1	09/30/2016 16:18
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 16:18
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 16:18
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 16:18
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 16:18
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 16:18
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 16:18
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 16:18
4-Chloroaniline	ND	0.50	1	09/30/2016 16:18
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 16:18
2-Chloronaphthalene	ND	0.25	1	09/30/2016 16:18
2-Chlorophenol	ND	0.25	1	09/30/2016 16:18
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 16:18
Chrysene	ND	0.25	1	09/30/2016 16:18
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 16:18
Dibenzofuran	ND	0.25	1	09/30/2016 16:18
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 16:18
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 16:18
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 16:18
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 16:18
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 16:18
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 16:18
Diethyl Phthalate	ND	0.25	1	09/30/2016 16:18
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 16:18
Dimethyl Phthalate	ND	0.25	1	09/30/2016 16:18
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 16:18

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 16:18
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 16:18
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 16:18
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 16:18
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 16:18
Fluoranthene	ND	0.25	1	09/30/2016 16:18
Fluorene	ND	0.25	1	09/30/2016 16:18
Hexachlorobenzene	ND	0.25	1	09/30/2016 16:18
Hexachlorobutadiene	ND	0.25	1	09/30/2016 16:18
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 16:18
Hexachloroethane	ND	0.25	1	09/30/2016 16:18
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 16:18
Isophorone	ND	0.25	1	09/30/2016 16:18
2-Methylnaphthalene	ND	0.25	1	09/30/2016 16:18
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 16:18
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 16:18
Naphthalene	ND	0.25	1	09/30/2016 16:18
2-Nitroaniline	ND	1.3	1	09/30/2016 16:18
3-Nitroaniline	ND	1.3	1	09/30/2016 16:18
4-Nitroaniline	ND	1.3	1	09/30/2016 16:18
Nitrobenzene	ND	0.25	1	09/30/2016 16:18
2-Nitrophenol	ND	1.3	1	09/30/2016 16:18
4-Nitrophenol	ND	1.3	1	09/30/2016 16:18
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 16:18
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 16:18
Pentachlorophenol	ND	1.3	1	09/30/2016 16:18
Phenanthrene	ND	0.25	1	09/30/2016 16:18
Phenol	ND	0.25	1	09/30/2016 16:18
Pyrene	ND	0.25	1	09/30/2016 16:18
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 16:18
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 16:18
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 16:18

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 13.0-13.5	**1609B80-019A**	**Soil**	**09/26/2016 15:20**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	130	30-130		09/30/2016 16:18
Phenol-d5	117	30-130		09/30/2016 16:18
Nitrobenzene-d5	107	30-130		09/30/2016 16:18
2-Fluorobiphenyl	105	30-130		09/30/2016 16:18
2,4,6-Tribromophenol	72	16-130		09/30/2016 16:18
4-Terphenyl-d14	118	30-130		09/30/2016 16:18

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	1609B80-020A	Soil	09/26/2016 15:32	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 19:57
Acenaphthylene	ND	0.25	1	09/30/2016 19:57
Acetochlor	ND	0.25	1	09/30/2016 19:57
Anthracene	ND	0.25	1	09/30/2016 19:57
Benzidine	ND	1.3	1	09/30/2016 19:57
Benzo (a) anthracene	ND	0.25	1	09/30/2016 19:57
Benzo (a) pyrene	ND	0.25	1	09/30/2016 19:57
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 19:57
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 19:57
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 19:57
Benzyl Alcohol	ND	1.3	1	09/30/2016 19:57
1,1-Biphenyl	ND	0.25	1	09/30/2016 19:57
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 19:57
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 19:57
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 19:57
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 19:57
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 19:57
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 19:57
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 19:57
4-Chloroaniline	ND	0.50	1	09/30/2016 19:57
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 19:57
2-Chloronaphthalene	ND	0.25	1	09/30/2016 19:57
2-Chlorophenol	ND	0.25	1	09/30/2016 19:57
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 19:57
Chrysene	ND	0.25	1	09/30/2016 19:57
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 19:57
Dibenzofuran	ND	0.25	1	09/30/2016 19:57
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 19:57
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 19:57
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 19:57
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 19:57
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 19:57
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 19:57
Diethyl Phthalate	ND	0.25	1	09/30/2016 19:57
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 19:57
Dimethyl Phthalate	ND	0.25	1	09/30/2016 19:57
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 19:57

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	**1609B80-020A**	**Soil**	**09/26/2016 15:32**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 19:57
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 19:57
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 19:57
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 19:57
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 19:57
Fluoranthene	ND	0.25	1	09/30/2016 19:57
Fluorene	ND	0.25	1	09/30/2016 19:57
Hexachlorobenzene	ND	0.25	1	09/30/2016 19:57
Hexachlorobutadiene	ND	0.25	1	09/30/2016 19:57
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 19:57
Hexachloroethane	ND	0.25	1	09/30/2016 19:57
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 19:57
Isophorone	ND	0.25	1	09/30/2016 19:57
2-Methylnaphthalene	ND	0.25	1	09/30/2016 19:57
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 19:57
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 19:57
Naphthalene	ND	0.25	1	09/30/2016 19:57
2-Nitroaniline	ND	1.3	1	09/30/2016 19:57
3-Nitroaniline	ND	1.3	1	09/30/2016 19:57
4-Nitroaniline	ND	1.3	1	09/30/2016 19:57
Nitrobenzene	ND	0.25	1	09/30/2016 19:57
2-Nitrophenol	ND	1.3	1	09/30/2016 19:57
4-Nitrophenol	ND	1.3	1	09/30/2016 19:57
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 19:57
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 19:57
Pentachlorophenol	ND	1.3	1	09/30/2016 19:57
Phenanthrene	ND	0.25	1	09/30/2016 19:57
Phenol	ND	0.25	1	09/30/2016 19:57
Pyrene	ND	0.25	1	09/30/2016 19:57
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 19:57
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 19:57
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 19:57

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 18.0-18.5	**1609B80-020A**	**Soil**	**09/26/2016 15:32**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	111	30-130		09/30/2016 19:57
Phenol-d5	99	30-130		09/30/2016 19:57
Nitrobenzene-d5	92	30-130		09/30/2016 19:57
2-Fluorobiphenyl	90	30-130		09/30/2016 19:57
2,4,6-Tribromophenol	70	16-130		09/30/2016 19:57
4-Terphenyl-d14	99	30-130		09/30/2016 19:57

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	1609B80-021A	Soil	09/26/2016 16:10	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	09/30/2016 20:24
Acenaphthylene	ND	0.25	1	09/30/2016 20:24
Acetochlor	ND	0.25	1	09/30/2016 20:24
Anthracene	ND	0.25	1	09/30/2016 20:24
Benzidine	ND	1.3	1	09/30/2016 20:24
Benzo (a) anthracene	ND	0.25	1	09/30/2016 20:24
Benzo (a) pyrene	ND	0.25	1	09/30/2016 20:24
Benzo (b) fluoranthene	ND	0.25	1	09/30/2016 20:24
Benzo (g,h,i) perylene	ND	0.25	1	09/30/2016 20:24
Benzo (k) fluoranthene	ND	0.25	1	09/30/2016 20:24
Benzyl Alcohol	ND	1.3	1	09/30/2016 20:24
1,1-Biphenyl	ND	0.25	1	09/30/2016 20:24
Bis (2-chloroethoxy) Methane	ND	0.25	1	09/30/2016 20:24
Bis (2-chloroethyl) Ether	ND	0.25	1	09/30/2016 20:24
Bis (2-chloroisopropyl) Ether	ND	0.25	1	09/30/2016 20:24
Bis (2-ethylhexyl) Adipate	ND	0.25	1	09/30/2016 20:24
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	09/30/2016 20:24
4-Bromophenyl Phenyl Ether	ND	0.25	1	09/30/2016 20:24
Butylbenzyl Phthalate	ND	0.25	1	09/30/2016 20:24
4-Chloroaniline	ND	0.50	1	09/30/2016 20:24
4-Chloro-3-methylphenol	ND	0.25	1	09/30/2016 20:24
2-Chloronaphthalene	ND	0.25	1	09/30/2016 20:24
2-Chlorophenol	ND	0.25	1	09/30/2016 20:24
4-Chlorophenyl Phenyl Ether	ND	0.25	1	09/30/2016 20:24
Chrysene	ND	0.25	1	09/30/2016 20:24
Dibenzo (a,h) anthracene	ND	0.25	1	09/30/2016 20:24
Dibenzofuran	ND	0.25	1	09/30/2016 20:24
Di-n-butyl Phthalate	ND	0.25	1	09/30/2016 20:24
1,2-Dichlorobenzene	ND	0.25	1	09/30/2016 20:24
1,3-Dichlorobenzene	ND	0.25	1	09/30/2016 20:24
1,4-Dichlorobenzene	ND	0.25	1	09/30/2016 20:24
3,3-Dichlorobenzidine	ND	0.50	1	09/30/2016 20:24
2,4-Dichlorophenol	ND	0.25	1	09/30/2016 20:24
Diethyl Phthalate	ND	0.25	1	09/30/2016 20:24
2,4-Dimethylphenol	ND	0.25	1	09/30/2016 20:24
Dimethyl Phthalate	ND	0.25	1	09/30/2016 20:24
4,6-Dinitro-2-methylphenol	ND	1.3	1	09/30/2016 20:24

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	**1609B80-021A**	**Soil**	**09/26/2016 16:10**	**GC21**	**127297**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	09/30/2016 20:24
2,4-Dinitrotoluene	ND	0.25	1	09/30/2016 20:24
2,6-Dinitrotoluene	ND	0.25	1	09/30/2016 20:24
Di-n-octyl Phthalate	ND	0.50	1	09/30/2016 20:24
1,2-Diphenylhydrazine	ND	0.25	1	09/30/2016 20:24
Fluoranthene	ND	0.25	1	09/30/2016 20:24
Fluorene	ND	0.25	1	09/30/2016 20:24
Hexachlorobenzene	ND	0.25	1	09/30/2016 20:24
Hexachlorobutadiene	ND	0.25	1	09/30/2016 20:24
Hexachlorocyclopentadiene	ND	1.3	1	09/30/2016 20:24
Hexachloroethane	ND	0.25	1	09/30/2016 20:24
Indeno (1,2,3-cd) pyrene	ND	0.25	1	09/30/2016 20:24
Isophorone	ND	0.25	1	09/30/2016 20:24
2-Methylnaphthalene	ND	0.25	1	09/30/2016 20:24
2-Methylphenol (o-Cresol)	ND	0.25	1	09/30/2016 20:24
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	09/30/2016 20:24
Naphthalene	ND	0.25	1	09/30/2016 20:24
2-Nitroaniline	ND	1.3	1	09/30/2016 20:24
3-Nitroaniline	ND	1.3	1	09/30/2016 20:24
4-Nitroaniline	ND	1.3	1	09/30/2016 20:24
Nitrobenzene	ND	0.25	1	09/30/2016 20:24
2-Nitrophenol	ND	1.3	1	09/30/2016 20:24
4-Nitrophenol	ND	1.3	1	09/30/2016 20:24
N-Nitrosodiphenylamine	ND	0.25	1	09/30/2016 20:24
N-Nitrosodi-n-propylamine	ND	0.25	1	09/30/2016 20:24
Pentachlorophenol	ND	1.3	1	09/30/2016 20:24
Phenanthrene	ND	0.25	1	09/30/2016 20:24
Phenol	ND	0.25	1	09/30/2016 20:24
Pyrene	ND	0.25	1	09/30/2016 20:24
1,2,4-Trichlorobenzene	ND	0.25	1	09/30/2016 20:24
2,4,5-Trichlorophenol	ND	0.25	1	09/30/2016 20:24
2,4,6-Trichlorophenol	ND	0.25	1	09/30/2016 20:24

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	9/28/16	**Analytical Method:**	SW8270C
Project:	SCUWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 24.0-25.5	1609B80-021A	Soil	09/26/2016 16:10	GC21	127297

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	122	30-130		09/30/2016 20:24
Phenol-d5	115	30-130		09/30/2016 20:24
Nitrobenzene-d5	98	30-130		09/30/2016 20:24
2-Fluorobiphenyl	96	30-130		09/30/2016 20:24
2,4,6-Tribromophenol	57	16-130		09/30/2016 20:24
4-Terphenyl-d14	112	30-130		09/30/2016 20:24

Analyst(s): REB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 13:39

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 13:43

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 13:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 13:51

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 13:55

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**61.1**	1.00	1	11/22/2016 10:21
Carbonate	ND	1.00	1	11/22/2016 10:21
Bicarbonate	**61.1**	1.00	1	11/22/2016 10:21
Hydroxide	ND	1.00	1	11/22/2016 10:21

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**65.3**	1.00	1	11/22/2016 10:24
Carbonate	ND	1.00	1	11/22/2016 10:24
Bicarbonate	**65.3**	1.00	1	11/22/2016 10:24
Hydroxide	ND	1.00	1	11/22/2016 10:24

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**87.3**	1.00	1	11/22/2016 10:28
Carbonate	ND	1.00	1	11/22/2016 10:28
Bicarbonate	**87.3**	1.00	1	11/22/2016 10:28
Hydroxide	ND	1.00	1	11/22/2016 10:28

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**84.8**	1.00	1	11/22/2016 10:31
Carbonate	ND	1.00	1	11/22/2016 10:31
Bicarbonate	**84.8**	1.00	1	11/22/2016 10:31
Hydroxide	ND	1.00	1	11/22/2016 10:31

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**49.1**	1.00	1	11/22/2016 10:37
Carbonate	ND	1.00	1	11/22/2016 10:37
Bicarbonate	**49.1**	1.00	1	11/22/2016 10:37
Hydroxide	ND	1.00	1	11/22/2016 10:37

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**61.9**	1.00	1	11/22/2016 10:40
Carbonate	ND	1.00	1	11/22/2016 10:40
Bicarbonate	**61.9**	1.00	1	11/22/2016 10:40
Hydroxide	ND	1.00	1	11/22/2016 10:40

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**74.1**	1.00	1	11/22/2016 10:43
Carbonate	ND	1.00	1	11/22/2016 10:43
Bicarbonate	**74.1**	1.00	1	11/22/2016 10:43
Hydroxide	ND	1.00	1	11/22/2016 10:43

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**75.6**	1.00	1	11/22/2016 10:47
Carbonate	ND	1.00	1	11/22/2016 10:47
Bicarbonate	**75.6**	1.00	1	11/22/2016 10:47
Hydroxide	ND	1.00	1	11/22/2016 10:47

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**33.2**	1.00	1	11/22/2016 10:49
Carbonate	ND	1.00	1	11/22/2016 10:49
Bicarbonate	**33.2**	1.00	1	11/22/2016 10:49
Hydroxide	ND	1.00	1	11/22/2016 10:49

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**39.9**	1.00	1	11/22/2016 10:52
Carbonate	ND	1.00	1	11/22/2016 10:52
Bicarbonate	**39.9**	1.00	1	11/22/2016 10:52
Hydroxide	ND	1.00	1	11/22/2016 10:52

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 18:42

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 15:54

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 18:43

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:01

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:06

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:09

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:19

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:22

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**SPECTROPHOTOMETER**	**130423**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:25

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.78 @ 22.0°C**	1.00	1	11/21/2016 17:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**9.00 @ 22.2°C**	1.00	1	11/21/2016 18:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.74 @ 22.2°C**	1.00	1	11/21/2016 18:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.74 @ 22.2°C**	1.00	1	11/21/2016 18:10

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.81 @ 22.3°C**	1.00	1	11/21/2016 18:15

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.95 @ 22.2°C**	1.00	1	11/21/2016 18:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.84 @ 22.3°C**	1.00	1	11/21/2016 18:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.85 @ 22.3°C**	1.00	1	11/21/2016 18:30

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.92 @ 22.3°C**	1.00	1	11/21/2016 18:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130173**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.78 @ 22.3°C**	1.00	1	11/21/2016 18:40

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 15ft bsg	**1609B80-002B**	**Soil**	**09/26/2016 11:25**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9600**	200	1	10/21/2016 16:19
Arsenic	ND	2.0	1	10/21/2016 16:19
Calcium	**4200**	400	1	10/21/2016 16:19
Chromium	**33**	2.0	1	10/21/2016 16:19
Copper	**20**	2.0	1	10/21/2016 16:19
Iron	**22,000**	80	1	10/21/2016 16:19
Lead	**6.9**	2.0	1	10/21/2016 16:19
Magnesium	**9300**	80	1	10/21/2016 16:19
Manganese	**450**	20	1	10/21/2016 16:19
Mercury	ND	0.20	1	10/21/2016 16:19
Selenium	ND	2.0	1	10/21/2016 16:19
Uranium	ND	2.0	1	10/21/2016 16:19
Zinc	**50**	20	1	10/21/2016 16:19

Analyst(s): DB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 10/4/16
Project: SCVWD-IPR

WorkOrder: 1609B80
Extraction Method: TM-7
Analytical Method: SW6020
Unit: mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 25ft bsg	**1609B80-004B**	**Soil**	**09/26/2016 12:15**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 16:26
Arsenic	**2.2**	2.0	1	10/21/2016 16:26
Calcium	**3300**	400	1	10/21/2016 16:26
Chromium	**41**	2.0	1	10/21/2016 16:26
Copper	**20**	2.0	1	10/21/2016 16:26
Iron	**25,000**	80	1	10/21/2016 16:26
Lead	**5.6**	2.0	1	10/21/2016 16:26
Magnesium	**12,000**	80	1	10/21/2016 16:26
Manganese	**660**	20	1	10/21/2016 16:26
Mercury	ND	0.20	1	10/21/2016 16:26
Selenium	ND	2.0	1	10/21/2016 16:26
Uranium	ND	2.0	1	10/21/2016 16:26
Zinc	**45**	20	1	10/21/2016 16:26

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 30ft bsg	**1609B80-005B**	**Soil**	**09/26/2016 13:00**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**12,000**	200	1	10/21/2016 16:32
Arsenic	**2.9**	2.0	1	10/21/2016 16:32
Calcium	**4300**	400	1	10/21/2016 16:32
Chromium	**39**	2.0	1	10/21/2016 16:32
Copper	**21**	2.0	1	10/21/2016 16:32
Iron	**27,000**	80	1	10/21/2016 16:32
Lead	**5.7**	2.0	1	10/21/2016 16:32
Magnesium	**11,000**	80	1	10/21/2016 16:32
Manganese	**660**	20	1	10/21/2016 16:32
Mercury	ND	0.20	1	10/21/2016 16:32
Selenium	ND	2.0	1	10/21/2016 16:32
Uranium	ND	2.0	1	10/21/2016 16:32
Zinc	**50**	20	1	10/21/2016 16:32

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 10ft	**1609B80-014B**	**Soil**	**09/26/2016 15:30**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 16:38
Arsenic	ND	2.0	1	10/21/2016 16:38
Calcium	**9300**	400	1	10/21/2016 16:38
Chromium	**35**	2.0	1	10/21/2016 16:38
Copper	**22**	2.0	1	10/21/2016 16:38
Iron	**25,000**	80	1	10/21/2016 16:38
Lead	**8.9**	2.0	1	10/21/2016 16:38
Magnesium	**11,000**	80	1	10/21/2016 16:38
Manganese	**560**	20	1	10/21/2016 16:38
Mercury	ND	0.20	1	10/21/2016 16:38
Selenium	ND	2.0	1	10/21/2016 16:38
Uranium	ND	2.0	1	10/21/2016 16:38
Zinc	**59**	20	1	10/21/2016 16:38

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 25ft	**1609B80-017B**	**Soil**	**09/26/2016 15:45**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 16:45
Arsenic	ND	2.0	1	10/21/2016 16:45
Calcium	**2600**	400	1	10/21/2016 16:45
Chromium	**43**	2.0	1	10/21/2016 16:45
Copper	**19**	2.0	1	10/21/2016 16:45
Iron	**24,000**	80	1	10/21/2016 16:45
Lead	**5.2**	2.0	1	10/21/2016 16:45
Magnesium	**12,000**	80	1	10/21/2016 16:45
Manganese	**670**	20	1	10/21/2016 16:45
Mercury	ND	0.20	1	10/21/2016 16:45
Selenium	ND	2.0	1	10/21/2016 16:45
Uranium	ND	2.0	1	10/21/2016 16:45
Zinc	**43**	20	1	10/21/2016 16:45

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 11:26
Antimony	ND		0.00050	1	11/30/2016 11:26
Arsenic	**0.0013**		0.00050	1	11/30/2016 11:26
Barium	**0.044**		0.0050	1	11/30/2016 11:26
Beryllium	ND		0.00050	1	11/30/2016 11:26
Cadmium	ND		0.00025	1	11/30/2016 11:26
Calcium	**11**	B	0.10	1	11/30/2016 11:26
Chromium	**0.0041**		0.00050	1	11/30/2016 11:26
Cobalt	ND		0.00050	1	11/30/2016 11:26
Copper	ND		0.00050	1	11/30/2016 11:26
Iron	ND		0.020	1	11/30/2016 11:26
Lead	ND		0.00050	1	11/30/2016 11:26
Lithium	ND		0.0050	1	11/30/2016 11:26
Magnesium	**15**	B	0.020	1	11/30/2016 11:26
Manganese	ND		0.020	1	11/30/2016 11:26
Mercury	**0.000061**		0.000050	1	11/30/2016 11:26
Molybdenum	**0.0073**		0.00050	1	11/30/2016 11:26
Nickel	ND		0.00050	1	11/30/2016 11:26
Potassium	**0.34**	B	0.020	1	11/30/2016 11:26
Selenium	ND		0.00050	1	11/30/2016 11:26
Silver	ND		0.00050	1	11/30/2016 11:26
Sodium	**26**	B	0.10	1	11/30/2016 11:26
Strontium	**0.21**		0.020	1	11/30/2016 11:26
Thallium	ND		0.00050	1	11/30/2016 11:26
Uranium	ND		0.00050	1	11/30/2016 11:26
Vanadium	**0.0018**		0.00050	1	11/30/2016 11:26
Zinc	ND		0.015	1	11/30/2016 11:26

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 11:51
Antimony	ND		0.00050	1	11/30/2016 11:51
Arsenic	**0.0012**		0.00050	1	11/30/2016 11:51
Barium	**0.043**		0.0050	1	11/30/2016 11:51
Beryllium	ND		0.00050	1	11/30/2016 11:51
Cadmium	ND		0.00025	1	11/30/2016 11:51
Calcium	**11**	B	0.10	1	11/30/2016 11:51
Chromium	**0.0040**		0.00050	1	11/30/2016 11:51
Cobalt	ND		0.00050	1	11/30/2016 11:51
Copper	ND		0.00050	1	11/30/2016 11:51
Iron	ND		0.020	1	11/30/2016 11:51
Lead	ND		0.00050	1	11/30/2016 11:51
Lithium	ND		0.0050	1	11/30/2016 11:51
Magnesium	**15**	B	0.020	1	11/30/2016 11:51
Manganese	ND		0.020	1	11/30/2016 11:51
Mercury	ND		0.000050	1	11/30/2016 11:51
Molybdenum	**0.0071**		0.00050	1	11/30/2016 11:51
Nickel	ND		0.00050	1	11/30/2016 11:51
Potassium	**0.33**	B	0.020	1	11/30/2016 11:51
Selenium	ND		0.00050	1	11/30/2016 11:51
Silver	ND		0.00050	1	11/30/2016 11:51
Sodium	**30**	B	0.10	1	11/30/2016 11:51
Strontium	**0.20**		0.020	1	11/30/2016 11:51
Thallium	ND		0.00050	1	11/30/2016 11:51
Uranium	ND		0.00050	1	11/30/2016 11:51
Vanadium	**0.0019**		0.00050	1	11/30/2016 11:51
Zinc	ND		0.015	1	11/30/2016 11:51

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 11:57
Antimony	ND		0.00050	1	11/30/2016 11:57
Arsenic	ND		0.00050	1	11/30/2016 11:57
Barium	**0.041**		0.0050	1	11/30/2016 11:57
Beryllium	ND		0.00050	1	11/30/2016 11:57
Cadmium	ND		0.00025	1	11/30/2016 11:57
Calcium	**21**	B	0.10	1	11/30/2016 11:57
Chromium	**0.00066**		0.00050	1	11/30/2016 11:57
Cobalt	ND		0.00050	1	11/30/2016 11:57
Copper	**0.0010**		0.00050	1	11/30/2016 11:57
Iron	ND		0.020	1	11/30/2016 11:57
Lead	ND		0.00050	1	11/30/2016 11:57
Lithium	**0.0060**		0.0050	1	11/30/2016 11:57
Magnesium	**10**	B	0.020	1	11/30/2016 11:57
Manganese	**0.22**		0.020	1	11/30/2016 11:57
Mercury	ND		0.000050	1	11/30/2016 11:57
Molybdenum	**0.0097**		0.00050	1	11/30/2016 11:57
Nickel	**0.0022**		0.00050	1	11/30/2016 11:57
Potassium	**1.2**	B	0.020	1	11/30/2016 11:57
Selenium	ND		0.00050	1	11/30/2016 11:57
Silver	ND		0.00050	1	11/30/2016 11:57
Sodium	**24**	B	0.10	1	11/30/2016 11:57
Strontium	**0.19**		0.020	1	11/30/2016 11:57
Thallium	ND		0.00050	1	11/30/2016 11:57
Uranium	ND		0.00050	1	11/30/2016 11:57
Vanadium	**0.00057**		0.00050	1	11/30/2016 11:57
Zinc	ND		0.015	1	11/30/2016 11:57

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:03
Antimony	ND		0.00050	1	11/30/2016 12:03
Arsenic	ND		0.00050	1	11/30/2016 12:03
Barium	**0.040**		0.0050	1	11/30/2016 12:03
Beryllium	ND		0.00050	1	11/30/2016 12:03
Cadmium	ND		0.00025	1	11/30/2016 12:03
Calcium	**21**	B	0.10	1	11/30/2016 12:03
Chromium	**0.00067**		0.00050	1	11/30/2016 12:03
Cobalt	ND		0.00050	1	11/30/2016 12:03
Copper	**0.00083**		0.00050	1	11/30/2016 12:03
Iron	ND		0.020	1	11/30/2016 12:03
Lead	ND		0.00050	1	11/30/2016 12:03
Lithium	**0.0061**		0.0050	1	11/30/2016 12:03
Magnesium	**10**	B	0.020	1	11/30/2016 12:03
Manganese	**0.18**		0.020	1	11/30/2016 12:03
Mercury	ND		0.000050	1	11/30/2016 12:03
Molybdenum	**0.0097**		0.00050	1	11/30/2016 12:03
Nickel	**0.0019**		0.00050	1	11/30/2016 12:03
Potassium	**1.2**	B	0.020	1	11/30/2016 12:03
Selenium	ND		0.00050	1	11/30/2016 12:03
Silver	ND		0.00050	1	11/30/2016 12:03
Sodium	**28**	B	0.10	1	11/30/2016 12:03
Strontium	**0.18**		0.020	1	11/30/2016 12:03
Thallium	ND		0.00050	1	11/30/2016 12:03
Uranium	ND		0.00050	1	11/30/2016 12:03
Vanadium	**0.00068**		0.00050	1	11/30/2016 12:03
Zinc	ND		0.015	1	11/30/2016 12:03

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:09
Antimony	ND		0.00050	1	11/30/2016 12:09
Arsenic	**0.0012**		0.00050	1	11/30/2016 12:09
Barium	**0.030**		0.0050	1	11/30/2016 12:09
Beryllium	ND		0.00050	1	11/30/2016 12:09
Cadmium	ND		0.00025	1	11/30/2016 12:09
Calcium	**15**	B	0.10	1	11/30/2016 12:09
Chromium	**0.00070**		0.00050	1	11/30/2016 12:09
Cobalt	ND		0.00050	1	11/30/2016 12:09
Copper	ND		0.00050	1	11/30/2016 12:09
Iron	ND		0.020	1	11/30/2016 12:09
Lead	ND		0.00050	1	11/30/2016 12:09
Lithium	**0.0066**		0.0050	1	11/30/2016 12:09
Magnesium	**6.4**	B	0.020	1	11/30/2016 12:09
Manganese	ND		0.020	1	11/30/2016 12:09
Mercury	ND		0.000050	1	11/30/2016 12:09
Molybdenum	**0.0081**		0.00050	1	11/30/2016 12:09
Nickel	ND		0.00050	1	11/30/2016 12:09
Potassium	**2.9**	B	0.020	1	11/30/2016 12:09
Selenium	ND		0.00050	1	11/30/2016 12:09
Silver	ND		0.00050	1	11/30/2016 12:09
Sodium	**25**	B	0.10	1	11/30/2016 12:09
Strontium	**0.14**		0.020	1	11/30/2016 12:09
Thallium	ND		0.00050	1	11/30/2016 12:09
Uranium	ND		0.00050	1	11/30/2016 12:09
Vanadium	**0.0023**		0.00050	1	11/30/2016 12:09
Zinc	ND		0.015	1	11/30/2016 12:09

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:15
Antimony	ND		0.00050	1	11/30/2016 12:15
Arsenic	**0.0013**		0.00050	1	11/30/2016 12:15
Barium	**0.031**		0.0050	1	11/30/2016 12:15
Beryllium	ND		0.00050	1	11/30/2016 12:15
Cadmium	ND		0.00025	1	11/30/2016 12:15
Calcium	**15**	B	0.10	1	11/30/2016 12:15
Chromium	**0.00067**		0.00050	1	11/30/2016 12:15
Cobalt	ND		0.00050	1	11/30/2016 12:15
Copper	ND		0.00050	1	11/30/2016 12:15
Iron	ND		0.020	1	11/30/2016 12:15
Lead	ND		0.00050	1	11/30/2016 12:15
Lithium	**0.0072**		0.0050	1	11/30/2016 12:15
Magnesium	**6.5**	B	0.020	1	11/30/2016 12:15
Manganese	ND		0.020	1	11/30/2016 12:15
Mercury	ND		0.000050	1	11/30/2016 12:15
Molybdenum	**0.0089**		0.00050	1	11/30/2016 12:15
Nickel	**0.00053**		0.00050	1	11/30/2016 12:15
Potassium	**2.9**	B	0.020	1	11/30/2016 12:15
Selenium	ND		0.00050	1	11/30/2016 12:15
Silver	ND		0.00050	1	11/30/2016 12:15
Sodium	**29**	B	0.10	1	11/30/2016 12:15
Strontium	**0.14**		0.020	1	11/30/2016 12:15
Thallium	ND		0.00050	1	11/30/2016 12:15
Uranium	ND		0.00050	1	11/30/2016 12:15
Vanadium	**0.0020**		0.00050	1	11/30/2016 12:15
Zinc	ND		0.015	1	11/30/2016 12:15

Analyst(s): MIG

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 11/22/16-11/23/16
Project: SCVWD-IPR

WorkOrder: 1609B80
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:22
Antimony	ND		0.00050	1	11/30/2016 12:22
Arsenic	**0.0017**		0.00050	1	11/30/2016 12:22
Barium	**0.033**		0.0050	1	11/30/2016 12:22
Beryllium	ND		0.00050	1	11/30/2016 12:22
Cadmium	ND		0.00025	1	11/30/2016 12:22
Calcium	**8.4**	B	0.10	1	11/30/2016 12:22
Chromium	**0.0069**		0.00050	1	11/30/2016 12:22
Cobalt	ND		0.00050	1	11/30/2016 12:22
Copper	**0.0010**		0.00050	1	11/30/2016 12:22
Iron	ND		0.020	1	11/30/2016 12:22
Lead	ND		0.00050	1	11/30/2016 12:22
Lithium	ND		0.0050	1	11/30/2016 12:22
Magnesium	**18**	B	0.020	1	11/30/2016 12:22
Manganese	ND		0.020	1	11/30/2016 12:22
Mercury	**0.000060**		0.000050	1	11/30/2016 12:22
Molybdenum	**0.0088**		0.00050	1	11/30/2016 12:22
Nickel	ND		0.00050	1	11/30/2016 12:22
Potassium	**0.36**	B	0.020	1	11/30/2016 12:22
Selenium	ND		0.00050	1	11/30/2016 12:22
Silver	ND		0.00050	1	11/30/2016 12:22
Sodium	**25**	B	0.10	1	11/30/2016 12:22
Strontium	**0.20**		0.020	1	11/30/2016 12:22
Thallium	ND		0.00050	1	11/30/2016 12:22
Uranium	ND		0.00050	1	11/30/2016 12:22
Vanadium	**0.0027**		0.00050	1	11/30/2016 12:22
Zinc	ND		0.015	1	11/30/2016 12:22

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:28
Antimony	ND		0.00050	1	11/30/2016 12:28
Arsenic	**0.0017**		0.00050	1	11/30/2016 12:28
Barium	**0.033**		0.0050	1	11/30/2016 12:28
Beryllium	ND		0.00050	1	11/30/2016 12:28
Cadmium	ND		0.00025	1	11/30/2016 12:28
Calcium	**8.1**	B	0.10	1	11/30/2016 12:28
Chromium	**0.0068**		0.00050	1	11/30/2016 12:28
Cobalt	ND		0.00050	1	11/30/2016 12:28
Copper	**0.00091**		0.00050	1	11/30/2016 12:28
Iron	ND		0.020	1	11/30/2016 12:28
Lead	ND		0.00050	1	11/30/2016 12:28
Lithium	**0.0051**		0.0050	1	11/30/2016 12:28
Magnesium	**18**	B	0.020	1	11/30/2016 12:28
Manganese	ND		0.020	1	11/30/2016 12:28
Mercury	**0.000066**		0.000050	1	11/30/2016 12:28
Molybdenum	**0.0087**		0.00050	1	11/30/2016 12:28
Nickel	ND		0.00050	1	11/30/2016 12:28
Potassium	**0.38**	B	0.020	1	11/30/2016 12:28
Selenium	ND		0.00050	1	11/30/2016 12:28
Silver	ND		0.00050	1	11/30/2016 12:28
Sodium	**27**	B	0.10	1	11/30/2016 12:28
Strontium	**0.19**		0.020	1	11/30/2016 12:28
Thallium	ND		0.00050	1	11/30/2016 12:28
Uranium	ND		0.00050	1	11/30/2016 12:28
Vanadium	**0.0026**		0.00050	1	11/30/2016 12:28
Zinc	ND		0.015	1	11/30/2016 12:28

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:34
Antimony	ND		0.00050	1	11/30/2016 12:34
Arsenic	**0.00052**		0.00050	1	11/30/2016 12:34
Barium	**0.021**		0.0050	1	11/30/2016 12:34
Beryllium	ND		0.00050	1	11/30/2016 12:34
Cadmium	ND		0.00025	1	11/30/2016 12:34
Calcium	**11**	B	0.10	1	11/30/2016 12:34
Chromium	**0.00082**		0.00050	1	11/30/2016 12:34
Cobalt	ND		0.00050	1	11/30/2016 12:34
Copper	ND		0.00050	1	11/30/2016 12:34
Iron	ND		0.020	1	11/30/2016 12:34
Lead	ND		0.00050	1	11/30/2016 12:34
Lithium	ND		0.0050	1	11/30/2016 12:34
Magnesium	**5.3**	B	0.020	1	11/30/2016 12:34
Manganese	ND		0.020	1	11/30/2016 12:34
Mercury	ND		0.000050	1	11/30/2016 12:34
Molybdenum	**0.0058**		0.00050	1	11/30/2016 12:34
Nickel	ND		0.00050	1	11/30/2016 12:34
Potassium	**1.5**	B	0.020	1	11/30/2016 12:34
Selenium	ND		0.00050	1	11/30/2016 12:34
Silver	ND		0.00050	1	11/30/2016 12:34
Sodium	**23**	B	0.10	1	11/30/2016 12:34
Strontium	**0.11**		0.020	1	11/30/2016 12:34
Thallium	ND		0.00050	1	11/30/2016 12:34
Uranium	ND		0.00050	1	11/30/2016 12:34
Vanadium	**0.00084**		0.00050	1	11/30/2016 12:34
Zinc	ND		0.015	1	11/30/2016 12:34

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:40
Antimony	ND		0.00050	1	11/30/2016 12:40
Arsenic	**0.00053**		0.00050	1	11/30/2016 12:40
Barium	**0.020**		0.0050	1	11/30/2016 12:40
Beryllium	ND		0.00050	1	11/30/2016 12:40
Cadmium	ND		0.00025	1	11/30/2016 12:40
Calcium	**11**	B	0.10	1	11/30/2016 12:40
Chromium	**0.00079**		0.00050	1	11/30/2016 12:40
Cobalt	ND		0.00050	1	11/30/2016 12:40
Copper	ND		0.00050	1	11/30/2016 12:40
Iron	ND		0.020	1	11/30/2016 12:40
Lead	ND		0.00050	1	11/30/2016 12:40
Lithium	ND		0.0050	1	11/30/2016 12:40
Magnesium	**5.2**	B	0.020	1	11/30/2016 12:40
Manganese	ND		0.020	1	11/30/2016 12:40
Mercury	ND		0.000050	1	11/30/2016 12:40
Molybdenum	**0.0056**		0.00050	1	11/30/2016 12:40
Nickel	ND		0.00050	1	11/30/2016 12:40
Potassium	**1.5**	B	0.020	1	11/30/2016 12:40
Selenium	ND		0.00050	1	11/30/2016 12:40
Silver	ND		0.00050	1	11/30/2016 12:40
Sodium	**25**	B	0.10	1	11/30/2016 12:40
Strontium	**0.11**		0.020	1	11/30/2016 12:40
Thallium	ND		0.00050	1	11/30/2016 12:40
Uranium	ND		0.00050	1	11/30/2016 12:40
Vanadium	**0.00086**		0.00050	1	11/30/2016 12:40
Zinc	ND		0.015	1	11/30/2016 12:40

Analyst(s): MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**463 @ 21.7°C**	±10	1	11/23/2016 15:36

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**447 @ 21.5°C**	±10	1	11/23/2016 15:42

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**436 @ 21.2°C**	±10	1	11/23/2016 15:45

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**429 @ 21.5°C**	±10	1	11/23/2016 15:48

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client: Todd Groundwater
Date Received: 9/26/16 19:15
Date Prepared: 11/23/16
Project: SCVWD-IPR

WorkOrder: 1609B80
Extraction Method: SM2580B-97
Analytical Method: SM2580B-97
Unit: mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	1609B80-005C	Soil	09/26/2016 13:00	WetChem	130320

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**414 @ 22.0°C**	±10	1	11/23/2016 15:51

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	1609B80-005D	Soil	09/26/2016 13:00	WetChem	130320

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**395 @ 21.4°C**	±10	1	11/23/2016 15:54

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	1609B80-014C	Soil	09/26/2016 15:30	WetChem	130320

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**376 @ 21.0°C**	±10	1	11/23/2016 15:57

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	1609B80-014D	Soil	09/26/2016 15:30	WetChem	130320

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**368 @ 21.4°C**	±10	1	11/23/2016 16:00

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**357 @ 21.7°C**	±10	1	11/23/2016 16:03

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130320**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**331 @ 22.5°C**	±10	1	11/23/2016 16:06

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	1609B80-002C	Soil	09/26/2016 11:25	WetChem	130132

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.33**	±0.05	1	11/21/2016 15:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	1609B80-002D	Soil	09/26/2016 11:25	WetChem	130132

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.38**	±0.05	1	11/21/2016 15:11

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	1609B80-003B	Soil	09/26/2016 11:50	WetChem	130132

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.09**	±0.05	1	11/21/2016 15:14

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	1609B80-003C	Soil	09/26/2016 11:50	WetChem	130132

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.13**	±0.05	1	11/21/2016 15:17

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.20**	±0.05	1	11/21/2016 15:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.28**	±0.05	1	11/21/2016 15:23

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.53**	±0.05	1	11/21/2016 15:26

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.51**	±0.05	1	11/21/2016 15:29

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.10**	±0.05	1	11/21/2016 15:32

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130132**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.88**	±0.05	1	11/21/2016 15:35

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	**0.059**	0.050	1	11/29/2016 15:26

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:29

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:32

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:34

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:37

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:40

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	**0.096**	0.050	1	11/29/2016 15:42

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	**0.085**	0.050	1	11/29/2016 15:45

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:53

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:56

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**297**	10.0	1	11/22/2016 18:00
Total Dissolved Solids (mg/L)	**145**	4.80	1	11/22/2016 18:00

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**302**	10.0	1	11/22/2016 18:10
Total Dissolved Solids (mg/L)	**148**	4.80	1	11/22/2016 18:10

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**296**	10.0	1	11/22/2016 18:15
Total Dissolved Solids (mg/L)	**145**	4.80	1	11/22/2016 18:15

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**301**	10.0	1	11/22/2016 18:20
Total Dissolved Solids (mg/L)	**148**	4.80	1	11/22/2016 18:20

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**252**	10.0	1	11/22/2016 18:25
Total Dissolved Solids (mg/L)	**124**	4.80	1	11/22/2016 18:25

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**268**	10.0	1	11/22/2016 18:30
Total Dissolved Solids (mg/L)	**131**	4.80	1	11/22/2016 18:30

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**296**	10.0	1	11/22/2016 18:35
Total Dissolved Solids (mg/L)	**145**	4.80	1	11/22/2016 18:35

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**302**	10.0	1	11/22/2016 18:40
Total Dissolved Solids (mg/L)	**148**	4.80	1	11/22/2016 18:40

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**221**	10.0	1	11/22/2016 18:45
Total Dissolved Solids (mg/L)	**108**	4.80	1	11/22/2016 18:45

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130483**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**233**	10.0	1	11/22/2016 18:50
Total Dissolved Solids (mg/L)	**114**	4.80	1	11/22/2016 18:50

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	9/28/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCUWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 10ft bsg	**1609B80-001A**	**Soil**	**09/26/2016 11:10**	**WetChem**	**127286**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**256**	25.0	1	09/28/2016 16:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 15ft bsg	**1609B80-002A**	**Soil**	**09/26/2016 11:25**	**WetChem**	**127286**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**266**	25.0	1	09/28/2016 16:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 20ft bsg	**1609B80-003A**	**Soil**	**09/26/2016 11:50**	**WetChem**	**127286**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**183**	25.0	1	09/28/2016 16:45

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 25ft bsg	**1609B80-004A**	**Soil**	**09/26/2016 12:15**	**WetChem**	**127286**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**151**	25.0	1	09/28/2016 16:50

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	9/28/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCUWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 30ft bsg	**1609B80-005A**	**Soil**	**09/26/2016 13:00**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**164**	25.0	1	09/28/2016 16:55

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 35ft bsg	**1609B80-006A**	**Soil**	**09/26/2016 13:10**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**152**	25.0	1	09/28/2016 17:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 40ft bsg	**1609B80-007A**	**Soil**	**09/26/2016 13:30**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**91.5**	25.0	1	09/28/2016 17:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 10ft	**1609B80-014A**	**Soil**	**09/26/2016 15:30**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**243**	25.0	1	09/28/2016 17:15

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	9/28/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCUWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 15ft	**1609B80-015A**	**Soil**	**09/26/2016 15:35**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**179**	25.0	1	09/28/2016 17:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 20ft	**1609B80-016A**	**Soil**	**09/26/2016 15:40**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**199**	25.0	1	09/28/2016 17:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 25ft	**1609B80-017A**	**Soil**	**09/26/2016 15:45**	**WetChem**	**127288**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**81.1**	25.0	1	09/28/2016 17:30

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/13/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 15ft bsg	**1609B80-002B**	**Soil**	**09/26/2016 11:25**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**1900**	15	1	11/01/2016 19:20

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 25ft bsg	**1609B80-004B**	**Soil**	**09/26/2016 12:15**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2300**	15	1	11/01/2016 19:24

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-1 30ft bsg	**1609B80-005B**	**Soil**	**09/26/2016 13:00**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2700**	15	1	11/01/2016 19:35

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 10ft	**1609B80-014B**	**Soil**	**09/26/2016 15:30**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2700**	15	1	11/01/2016 19:39

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/13/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 25ft	**1609B80-017B**	**Soil**	**09/26/2016 15:45**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2400**	15	1	11/01/2016 19:43

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.2**	B	0.050	1	11/30/2016 17:23

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.2**	B	0.050	1	12/01/2016 12:52

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.9**	B	0.050	1	11/30/2016 17:30

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.9**	B	0.050	1	11/30/2016 17:34

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.1**	B	0.050	1	11/30/2016 17:38

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.4**	B	0.050	1	12/01/2016 12:56

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.0**	B	0.050	1	11/30/2016 17:46

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.4**	B	0.050	1	11/30/2016 17:49

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.6**	B	0.050	1	11/30/2016 18:01

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.2**	B	0.050	1	12/01/2016 13:00

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:25

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:45

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**SPECTROPHOTOMETER**	**130709**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 19:55

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WC_SKALAR**	**130201**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.54**	0.30	1	11/23/2016 13:58

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:11

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WC_SKALAR**	**130201**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 14:02

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:15

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WC_SKALAR**	**130201**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 14:06

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:19

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WC_SKALAR**	**130201**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 14:10

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:23

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	1609B80-017C	Soil	09/26/2016 15:45	WC_SKALAR	130201

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 15:55

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	1609B80-017D	Soil	09/26/2016 15:45	WC_SKALAR	130203

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:27

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.121**	0.100	1	11/23/2016 17:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.167**	0.100	1	11/23/2016 17:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.330**	0.100	1	11/23/2016 17:55

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.212**	0.100	1	11/23/2016 18:00

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.209**	0.100	1	11/23/2016 18:05

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.228**	0.100	1	11/23/2016 18:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.181**	0.100	1	11/23/2016 18:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.437**	0.100	1	11/23/2016 18:20

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.218**	0.100	1	11/23/2016 18:25

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WetChem**	**130327**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.153**	0.100	1	11/23/2016 18:30

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 04:33

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 22:24

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	**1.3**	0.70	1	11/22/2016 05:34

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	**1.2**	0.70	1	11/22/2016 05:46

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 05:58

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 22:37

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 06:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 22:49

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 06:48

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 23:03

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 1	**1609B80-002C**	**Soil**	**09/26/2016 11:25**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**53**	2.6	1	11/23/2016 19:33

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S1 15ft Chem Dose 2	**1609B80-002D**	**Soil**	**09/26/2016 11:25**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**57**	2.6	1	11/23/2016 16:23

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 1	**1609B80-003B**	**Soil**	**09/26/2016 11:50**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**82**	2.6	1	11/23/2016 19:41

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 20ft Chem Dose 2	**1609B80-003C**	**Soil**	**09/26/2016 11:50**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**83**	2.6	1	11/23/2016 19:56

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 1	**1609B80-005C**	**Soil**	**09/26/2016 13:00**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**44**	2.6	1	11/23/2016 20:05

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-1 30ft Chem Dose 2	**1609B80-005D**	**Soil**	**09/26/2016 13:00**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**52**	2.6	1	11/23/2016 16:31

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 1	**1609B80-014C**	**Soil**	**09/26/2016 15:30**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**65**	2.6	1	11/23/2016 20:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 10ft Chem Dose 2	**1609B80-014D**	**Soil**	**09/26/2016 15:30**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**68**	2.6	1	11/23/2016 16:39

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Received:	9/26/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 1	**1609B80-017C**	**Soil**	**09/26/2016 15:45**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 20:20

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 25ft Chem Dose 2	**1609B80-017D**	**Soil**	**09/26/2016 15:45**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**36**	2.6	1	11/23/2016 16:46

Analyst(s): BAS

Angela Rydelius, Lab Manager

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	12/1/16	**BatchID:**	130600
Date Analyzed:	11/25/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130600

QC Summary Report for E218.6 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0248	0.00020	0.025	-	99	90-110

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/26/16	**BatchID:**	127146
Date Analyzed:	9/27/16 - 9/29/16	**Extraction Method:**	E300.0
Instrument:	IC3	**Analytical Method:**	E300.0
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127146

QC Summary Report for E300.0

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	94.2	10	100	-	94	80-120
Nitrate as NO_3^-	ND	417	45	440	-	95	80-120
Surrogate Recovery							
Formate	9.89	9.79		10	99	98	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/27/16	**BatchID:**	127190
Date Analyzed:	9/28/16	**Extraction Method:**	E300.0
Instrument:	IC3	**Analytical Method:**	E300.0
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127190

QC Summary Report for E300.0

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	96.2	10	100	-	96	80-120
Nitrate as $NO3^-$	ND	426	45	440	-	97	80-120
Surrogate Recovery							
Formate	9.75	9.47		10	97	95	80-120

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16 - 12/1/16	**BatchID:**	130574
Date Analyzed:	11/21/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130574

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.980	0.10	1	-	98	85-115
Chloride	ND	0.984	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.989	0.10	1	-	99	85-115
Nitrate as NO_3^-	ND	4.38	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.01	0.10	1	-	101	85-115
Nitrite as NO_2^-	ND	3.30	0.33	3.3	-	100	85-115
Sulfate	ND	0.990	0.10	1	-	99	85-115
Surrogate Recovery							
Formate	0.106	0.104		0.10	106	104	85-115

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/26/16 - 11/27/16	**BatchID:**	130543
Date Analyzed:	11/26/16 - 11/27/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130543

QC Summary Report E314.0 (Perchlorate, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	9.62	4.0	10	-	96	85-115

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127621
Date Analyzed:	9/28/16	**Extraction Method:**	E314.0 modified
Instrument:	IC1	**Analytical Method:**	E314.0m
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127621 1609B80-017AMS/MSD

QC Summary Report for E314.0m (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	0.898	0.40	1	-	90	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	0.954	0.996	1	ND	95	100	70-130	4.31	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/26/16	**BatchID:**	127158
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127158 1609B65-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0394	0.0050	0.050	-	79	53-116
Benzene	ND	0.0451	0.0050	0.050	-	90	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.162	0.050	0.20	-	81	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0446	0.0050	0.050	-	89	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0416	0.0040	0.050	-	83	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0414	0.0040	0.050	-	83	58-135
1,1-Dichloroethene	ND	0.0446	0.0050	0.050	-	89	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/26/16	**BatchID:**	127158
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127158 1609B65-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0417	0.0050	0.050	-	83	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0413	0.0050	0.050	-	83	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0404	0.0050	0.050	-	81	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0478	0.0050	0.050	-	96	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0475	0.0050	0.050	-	95	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/26/16	**BatchID:**	127158
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127158 1609B65-007AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.120	0.126		0.12	96	101	70-130
Toluene-d8	0.134	0.131		0.12	107	105	70-130
4-BFB	0.0124	0.0129		0.012	99	103	70-130
Benzene-d6	0.0936	0.0966		0.10	94	97	60-140
Ethylbenzene-d10	0.116	0.114		0.10	116	114	60-140
1,2-DCB-d4	0.0861	0.0825		0.10	86	82	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0388	0.0382	0.050	ND	78	76	53-116	1.67	20
Benzene	0.0442	0.0434	0.050	ND	88	87	63-137	1.72	20
t-Butyl alcohol (TBA)	0.149	0.148	0.20	ND	74	74	41-135	0	20
Chlorobenzene	0.0427	0.0422	0.050	ND	85	84	77-121	1.03	20
1,2-Dibromoethane (EDB)	0.0399	0.0401	0.050	ND	80	80	67-119	0	20
1,2-Dichloroethane (1,2-DCA)	0.0401	0.0394	0.050	ND	80	79	58-135	1.84	20
1,1-Dichloroethene	0.0429	0.0413	0.050	ND	86	83	42-145	3.97	20
Diisopropyl ether (DIPE)	0.0416	0.0406	0.050	ND	83	81	52-129	2.49	20
Ethyl tert-butyl ether (ETBE)	0.0410	0.0403	0.050	ND	82	81	53-125	1.77	20
Methyl-t-butyl ether (MTBE)	0.0397	0.0393	0.050	ND	79	79	58-122	0	20
Toluene	0.0467	0.0465	0.050	ND	93	93	76-130	0	20
Trichloroethene	0.0446	0.0432	0.050	ND	89	86	72-132	3.26	20
Surrogate Recovery									
Dibromofluoromethane	0.125	0.125	0.12		100	100	70-130	0	20
Toluene-d8	0.132	0.134	0.12		106	108	70-130	1.74	20
4-BFB	0.0133	0.0129	0.012		106	103	70-130	2.62	20
Benzene-d6	0.0937	0.0886	0.10		94	89	60-140	5.68	20
Ethylbenzene-d10	0.103	0.101	0.10		103	101	60-140	2.13	20
1,2-DCB-d4	0.0760	0.0763	0.10		76	76	60-140	0	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/27/16	**BatchID:**	127238
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127238

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.44	0.25	5	-	89	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	5.15	0.25	5	-	103	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	5.12	0.25	5	-	102	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.16	0.25	5	-	83	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/27/16	**BatchID:**	127238
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127238

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	4.56	0.25	5	-	91	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.08	1.3	5	-	82	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.88	0.25	5	-	98	47-108
Pentachlorophenol	ND	5.14	1.3	5	-	103	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.70	0.25	5	-	94	49-107
Pyrene	ND	4.61	0.25	5	-	92	55-124
1,2,4-Trichlorobenzene	ND	4.85	0.25	5	-	97	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/27/16	**BatchID:**	127238
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127238

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.85	5.39		5	117	108	47-125
Phenol-d5	5.24	4.92		5	105	98	45-117
Nitrobenzene-d5	5.00	4.90		5	100	98	39-121
2-Fluorobiphenyl	4.55	4.27		5	91	85	35-120
2,4,6-Tribromophenol	4.16	4.17		5	83	83	32-111
4-Terphenyl-d14	4.63	3.95		5	93	79	32-128

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127297
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127297 1609C06-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.03	0.25	5	-	81	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	4.34	0.25	5	-	87	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	4.29	0.25	5	-	86	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	3.63	0.25	5	-	73	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127297
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127297 1609C06-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	4.17	0.25	5	-	83	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	3.71	1.3	5	-	74	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	3.96	0.25	5	-	79	47-108
Pentachlorophenol	ND	4.81	1.3	5	-	96	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	3.91	0.25	5	-	78	49-107
Pyrene	ND	4.50	0.25	5	-	90	55-124
1,2,4-Trichlorobenzene	ND	4.29	0.25	5	-	86	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127297
Date Analyzed:	9/28/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCUWD-IPR	**Sample ID:**	MB/LCS-127297 1609C06-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.38	4.67		5	108	93	47-125
Phenol-d5	4.74	4.09		5	95	82	45-117
Nitrobenzene-d5	4.94	4.44		5	99	89	39-121
2-Fluorobiphenyl	4.51	4.02		5	90	80	35-120
2,4,6-Tribromophenol	4.16	3.98		5	83	80	32-111
4-Terphenyl-d14	4.60	3.76		5	92	75	32-128

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<2	NR	NR	-	NR	
4-Chloro-3-methylphenol	NR	NR		ND<2	NR	NR	-	NR	
2-Chlorophenol	NR	NR		ND<2	NR	NR	-	NR	
1,4-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	
2,4-Dinitrotoluene	NR	NR		ND<2	NR	NR	-	NR	
4-Nitrophenol	NR	NR		ND<10	NR	NR	-	NR	
N-Nitrosodi-n-propylamine	NR	NR		ND<2	NR	NR	-	NR	
Pentachlorophenol	NR	NR		ND<10	NR	NR	-	NR	
Phenol	NR	NR		ND<2	NR	NR	-	NR	
Pyrene	NR	NR		ND<2	NR	NR	-	NR	
1,2,4-Trichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	
Phenol-d5	NR	NR			NR	NR	-	NR	
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16	**BatchID:**	130116
Date Analyzed:	11/21/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130116 1611655-001DMS/MSD

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.30	0.10	4	-	107	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	3.81	4.08	4	ND	95	102	88-113	7.01	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130239
Date Analyzed:	11/22/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130239

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	3.81	0.10	4	-	95	88-113

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130196
Date Analyzed:	11/22/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	SCVWD-IPR		

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1611A14-003F	44.0	1	43.6	1	0.91	<20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/28/16	**BatchID:**	130423
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:		**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB-130423

QC Summary Report for SM4500-Cl G (Leachate)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16	**BatchID:**	130173
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate		
Project:	SCVWD-IPR		

QC Summary Report for Dissolved Oxygen (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609B80-002C	Dissolved Oxygen	mg DO/L @ °C	8.78 @ 22.0°C	1	8.77 @ 22.0°C	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	10/4/16	**BatchID:**	128080
Date Analyzed:	10/21/16	**Extraction Method:**	TM-7
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB-128080

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	-	200	-	-	-	-
Arsenic	ND	-	2.0	-	-	-	-
Calcium	ND	-	400	-	-	-	-
Chromium	ND	-	2.0	-	-	-	-
Copper	ND	-	2.0	-	-	-	-
Iron	ND	-	80	-	-	-	-
Lead	ND	-	2.0	-	-	-	-
Magnesium	ND	-	80	-	-	-	-
Manganese	ND	-	20	-	-	-	-
Mercury	ND	-	0.050	-	-	-	-
Selenium	ND	-	0.50	-	-	-	-
Uranium	ND	-	2.0	-	-	-	-
Zinc	ND	-	20	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130211
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130211

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.528	0.050	0.50	-	106	75-125
Antimony	ND	0.0534	0.00050	0.050	-	107	75-125
Arsenic	ND	0.0513	0.00050	0.050	-	103	75-125
Barium	ND	0.514	0.0050	0.50	-	103	75-125
Beryllium	ND	0.0516	0.00050	0.050	-	103	75-125
Cadmium	ND	0.0510	0.00025	0.050	-	102	75-125
Calcium	18.4	23.6	0.10	5	-	472, F2	75-125
Chromium	ND	0.0518	0.00050	0.050	-	104	75-125
Cobalt	ND	0.0466	0.00050	0.050	-	93	75-125
Copper	ND	0.0519	0.00050	0.050	-	104	75-125
Iron	ND	5.08	0.020	5	-	102	75-125
Lead	ND	0.0512	0.00050	0.050	-	102	75-125
Lithium	ND	0.0500	0.0050	0.050	-	100	75-125
Magnesium	0.0444	5.32	0.020	5	-	106	75-125
Manganese	ND	5.10	0.020	5	-	102	75-125
Mercury	ND	0.00137	0.000050	0.0012	-	110	75-125
Molybdenum	ND	0.0531	0.00050	0.050	-	106	75-125
Nickel	ND	0.0502	0.00050	0.050	-	100	75-125
Potassium	1.04	6.21	0.020	5	-	124	75-125
Selenium	ND	0.0514	0.00050	0.050	-	103	75-125
Silver	ND	0.0514	0.00050	0.050	-	103	75-125
Sodium	21.3	26.4	0.10	5	-	529, F2	75-125
Strontium	ND	0.513	0.020	0.50	-	103	75-125
Thallium	ND	0.0512	0.00050	0.050	-	102	75-125
Uranium	ND	0.0523	0.00050	0.050	-	105	75-125
Vanadium	ND	0.0520	0.00050	0.050	-	104	75-125
Zinc	ND	0.503	0.0050	0.50	-	101	75-125

(Cont.)

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/30/16
Instrument: ICP-MS2
Matrix: Soil
Project: SCVWD-IPR

WorkOrder: 1609B80
BatchID: 130300
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS-130300

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.520	0.050	0.50	-	104	75-125
Antimony	ND	0.0539	0.00050	0.050	-	108	75-125
Arsenic	ND	0.0520	0.00050	0.050	-	104	75-125
Barium	ND	0.510	0.0050	0.50	-	102	75-125
Beryllium	ND	0.0516	0.00050	0.050	-	103	75-125
Cadmium	ND	0.0511	0.00025	0.050	-	102	75-125
Calcium	18.3	23.8	0.10	5	-	476, F2	75-125
Chromium	ND	0.0513	0.00050	0.050	-	103	75-125
Cobalt	ND	0.0481	0.00050	0.050	-	96	75-125
Copper	ND	0.0499	0.00050	0.050	-	100	75-125
Iron	ND	5.00	0.020	5	-	100	75-125
Lead	ND	0.0512	0.00050	0.050	-	102	75-125
Lithium	ND	0.0497	0.0050	0.050	-	99	75-125
Magnesium	0.0382	5.28	0.020	5	-	106	75-125
Manganese	ND	5.12	0.020	5	-	102	75-125
Mercury	ND	0.00142	0.000050	0.0012	-	114	75-125
Molybdenum	ND	0.0537	0.00050	0.050	-	107	75-125
Nickel	ND	0.0500	0.00050	0.050	-	100	75-125
Potassium	1.05	6.24	0.020	5	-	125	75-125
Selenium	ND	0.0518	0.00050	0.050	-	104	75-125
Silver	ND	0.0516	0.00050	0.050	-	103	75-125
Sodium	24.6	30.3	0.10	5	-	605, F2	75-125
Strontium	ND	0.510	0.020	0.50	-	102	75-125
Thallium	ND	0.0504	0.00050	0.050	-	101	75-125
Uranium	ND	0.0512	0.00050	0.050	-	102	75-125
Vanadium	ND	0.0514	0.00050	0.050	-	103	75-125
Zinc	ND	0.500	0.0050	0.50	-	100	75-125

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/23/16	**BatchID:**	130320
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	SCVWD-IPR		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609B80-002C	ORP	mV vs. NHE	463 @ 21.7°C	1	462 @ 21.6°C	1	0.202	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16	**BatchID:**	130132
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate		
Project:	SCVWD-IPR		

QC Summary Report for pH (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609B80-002C	pH	pH units @ 25°C	8.33	1	8.32	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130206
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130206

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	1.00	1.03	1	100	103	80-120	2.56	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/23/16	**BatchID:**	130296
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130296

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	0.974	0.974	1	97	97	80-120	0	20

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/22/16
Date Analyzed: 11/22/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWD-IPR

WorkOrder: 1609B80
BatchID: 130483
Extraction Method: SM2510 B-1997
Analytical Method: SM2510 B-1997

QC Summary Report for SM2510B (SC, Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609B80-002C	Specific Conductivity	µmhos/cm @ 25°C	297	1	298	1	0.269	<2

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127286
Date Analyzed:	9/28/16	**Extraction Method:**	SM2510Bm-1997
Instrument:	WetChem	**Analytical Method:**	SM2510Bm-1997
Matrix:	Soil	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609B66-001A	1090	1	1090	1	0.09	<5

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	9/28/16	**BatchID:**	127288
Date Analyzed:	9/28/16	**Extraction Method:**	SM2510Bm-1997
Instrument:	WetChem	**Analytical Method:**	SM2510Bm-1997
Matrix:	Soil	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609B80-005A	164	1	164	1	0	<5

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	10/13/16	**BatchID:**	128926
Date Analyzed:	11/1/16	**Extraction Method:**	TM-7
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB-128926

QC Summary Report for Silicon

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	-	15	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130209
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130209

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.461	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.984	1.01	1	98	101	80-120	2.62	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/23/16	**BatchID:**	130298
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130298

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.992	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.954	0.984	1	95	98	80-120	3.14	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	12/2/16	**BatchID:**	130709
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130709 1609B80-002CMS/MSD

QC Summary Report SM4500 S-2D (Sulfide, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.496	0.050	0.50	-	99	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.405	0.405	0.50	ND	81	81	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130201
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130201

QC Summary Report E351.2 (TKN as N, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	12.0	0.30	12	-	100	90-110

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/22/16	**BatchID:**	130203
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130203

QC Summary Report E351.2 (TKN as N, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	11.4	0.30	12	-	95	90-110

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/23/16	**BatchID:**	130327
Date Analyzed:	11/23/16	**Extraction Method:**	SM2130 B-2001
Instrument:	WetChem	**Analytical Method:**	SM2130 B-2001
Matrix:	Leachate	**Unit:**	NTU
Project:	SCVWD-IPR		

QC Summary Report SM2130B (Turbidity, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609B80-002C	0.121	1	0.133	1	9.45	<10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16	**BatchID:**	130134
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130134

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.4	0.70	50	-	101	80-120

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/21/16	**BatchID:**	130137
Date Analyzed:	11/21/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130137

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.5	0.70	50	-	101	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609B80
Date Prepared:	11/23/16	**BatchID:**	130278
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130278

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	39.5	2.6	36.7	-	108	80-120

McCampbell Analytical, Inc.

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:

Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:

Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609B80-001	SONIC-1 10ft bsg	Soil	9/26/2016 11:10	☐		A			A							
1609B80-002	S1 15ft Chem Dose 1	Soil	9/26/2016 11:25	☐	C		C	C				C	C	C	C	C
1609B80-002	S1 15ft Chem Dose 2	Soil	9/26/2016 11:25	☐	D		D	D				D	D	D	D	D
1609B80-002	SONIC-1 15ft bsg	Soil	9/26/2016 11:25	☐		A			A							
1609B80-003	S-1 20ft Chem Dose 1	Soil	9/26/2016 11:50	☐	B		B	B				B	B	B	B	B
1609B80-003	S-1 20ft Chem Dose 2	Soil	9/26/2016 11:50	☐	C		C	C				C	C	C	C	C
1609B80-003	SONIC-1 20ft bsg	Soil	9/26/2016 11:50	☐		A			A							
1609B80-004	SONIC-1 25ft bsg	Soil	9/26/2016 12:15	☐		A			A							
1609B80-005	S-1 30ft Chem Dose 1	Soil	9/26/2016 13:00	☐	C		C	C				C	C	C	C	C
1609B80-005	S-1 30ft Chem Dose 2	Soil	9/26/2016 13:00	☐	D		D	D				D	D	D	D	D
1609B80-005	SONIC-1 30ft bsg	Soil	9/26/2016 13:00	☐		A			A							
1609B80-006	SONIC-1 35ft bsg	Soil	9/26/2016 13:10	☐		A			A							
1609B80-007	SONIC-1 40ft bsg	Soil	9/26/2016 13:30	☐		A			A							
1609B80-008	SONIC-1 12.5-13.0	Soil	9/26/2016 11:10	☐						A	A					
1609B80-009	SONIC-1 18.0-18.5	Soil	9/26/2016 11:25	☐						A	A					

Test Legend:

1	**218_6_Leachate**	**2**	**300_0_S**	**3**	**300_1_Leachate**	**4**	**314_Leachate**
5	**314_S**	**6**	**8260B_S**	**7**	**8270_S**	**8**	**Alk_Leachate**
9	**AMMONIA_Leachate**	**10**	**CHLORINE_SM4500CLG_Leachate**	**11**	**cnsDOC_Leachate**	**12**	**cnsIC(CO2)_Leachate**

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609B80-010	SONIC-1 24.0-24.5	Soil	9/26/2016 11:50	☐						A	A					
1609B80-011	SONIC-1 28.0-28.5'	Soil	9/26/2016 12:15	☐						A	A					
1609B80-012	SONIC-1 32.5-33.5'	Soil	9/26/2016 13:00	☐						A	A					
1609B80-013	SONIC-1 38.0-38.5'	Soil	9/26/2016 13:30	☐						A	A					
1609B80-014	S-2 10ft Chem Dose 1	Soil	9/26/2016 15:30	☐	C		C	C				C	C	C	C	C
1609B80-014	S-2 10ft Chem Dose 2	Soil	9/26/2016 15:30	☐	D		D	D				D	D	D	D	D
1609B80-014	SONIC-2 10ft	Soil	9/26/2016 15:30	☐		A			A							
1609B80-015	SONIC-2 15ft	Soil	9/26/2016 15:35	☐		A			A							
1609B80-016	SONIC-2 20ft	Soil	9/26/2016 15:40	☐		A			A							
1609B80-017	S-2 25ft Chem Dose 1	Soil	9/26/2016 15:45	☐	C		C	C				C	C	C	C	C
1609B80-017	S-2 25ft Chem Dose 2	Soil	9/26/2016 15:45	☐	D		D	D				D	D	D	D	D
1609B80-017	SONIC-2 25ft	Soil	9/26/2016 15:45	☐		A			A							
1609B80-018	SONIC-2 8.0-9.0'	Soil	9/26/2016 15:15	☐						A	A					
1609B80-019	SONIC-2 13.0-13.5	Soil	9/26/2016 15:20	☐						A	A					
1609B80-020	SONIC-2 18.0-18.5	Soil	9/26/2016 15:32	☐						A	A					

Test Legend:

1	**218_6_Leachate**	2	**300_0_S**	3	**300_1_Leachate**	4	**314_Leachate**
5	**314_S**	6	**8260B_S**	7	**8270_S**	8	**Alk_Leachate**
9	**AMMONIA_Leachate**	10	**CHLORINE_SM4500CLG_Leachate**	11	**cnsDOC_Leachate**	12	**cnsIC(CO2)_Leachate**

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609B80-021	SONIC-2 24.0-25.5	Soil	9/26/2016 16:10	☐						A	A					

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609B80-001	SONIC-1 10ft bsg	Soil	9/26/2016 11:10	☐								A				
1609B80-002	S1 15ft Chem Dose 1	Soil	9/26/2016 11:25	☐	C		C	C	C	C	C			C	C	C
1609B80-002	S1 15ft Chem Dose 2	Soil	9/26/2016 11:25	☐	D		D	D	D	D	D			D	D	D
1609B80-002	SONIC-1 15ft bsg	Soil	9/26/2016 11:25	☐		B						A	B			
1609B80-003	S-1 20ft Chem Dose 1	Soil	9/26/2016 11:50	☐	B		B	B	B	B	B			B	B	B
1609B80-003	S-1 20ft Chem Dose 2	Soil	9/26/2016 11:50	☐	C		C	C	C	C	C			C	C	C
1609B80-003	SONIC-1 20ft bsg	Soil	9/26/2016 11:50	☐								A				
1609B80-004	SONIC-1 25ft bsg	Soil	9/26/2016 12:15	☐		B						A	B			
1609B80-005	S-1 30ft Chem Dose 1	Soil	9/26/2016 13:00	☐	C		C	C	C	C	C			C	C	C
1609B80-005	S-1 30ft Chem Dose 2	Soil	9/26/2016 13:00	☐	D		D	D	D	D	D			D	D	D
1609B80-005	SONIC-1 30ft bsg	Soil	9/26/2016 13:00	☐		B						A	B			
1609B80-006	SONIC-1 35ft bsg	Soil	9/26/2016 13:10	☐								A				
1609B80-007	SONIC-1 40ft bsg	Soil	9/26/2016 13:30	☐								A				
1609B80-008	SONIC-1 12.5-13.0	Soil	9/26/2016 11:10	☐												
1609B80-009	SONIC-1 18.0-18.5	Soil	9/26/2016 11:25	☐												

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609B80-010	SONIC-1 24.0-24.5	Soil	9/26/2016 11:50	☐												
1609B80-011	SONIC-1 28.0-28.5'	Soil	9/26/2016 12:15	☐												
1609B80-012	SONIC-1 32.5-33.5'	Soil	9/26/2016 13:00	☐												
1609B80-013	SONIC-1 38.0-38.5'	Soil	9/26/2016 13:30	☐												
1609B80-014	S-2 10ft Chem Dose 1	Soil	9/26/2016 15:30	☐	C		C	C	C	C	C			C	C	C
1609B80-014	S-2 10ft Chem Dose 2	Soil	9/26/2016 15:30	☐	D		D	D	D	D	D			D	D	D
1609B80-014	SONIC-2 10ft	Soil	9/26/2016 15:30	☐		B						A	B			
1609B80-015	SONIC-2 15ft	Soil	9/26/2016 15:35	☐								A				
1609B80-016	SONIC-2 20ft	Soil	9/26/2016 15:40	☐								A				
1609B80-017	S-2 25ft Chem Dose 1	Soil	9/26/2016 15:45	☐	C		C	C	C	C	C			C	C	C
1609B80-017	S-2 25ft Chem Dose 2	Soil	9/26/2016 15:45	☐	D		D	D	D	D	D			D	D	D
1609B80-017	SONIC-2 25ft	Soil	9/26/2016 15:45	☐		B						A	B			
1609B80-018	SONIC-2 8.0-9.0'	Soil	9/26/2016 15:15	☐												
1609B80-019	SONIC-2 13.0-13.5	Soil	9/26/2016 15:20	☐												
1609B80-020	SONIC-2 18.0-18.5	Soil	9/26/2016 15:32	☐												

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☑ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					13	14	15	16	17	18	19	20	21	22	23	24
1609B80-021	SONIC-2 24.0-25.5	Soil	9/26/2016 16:10	☐												

Test Legend:

13	DO_Leachate	14	METALSMS_HH_S	15	METALSMS_SPLP_S	16	ORP_Leachate
17	P_SPLP_Leachate	18	PH_Leachate	19	SC_Leachate	20	SC_S
21	SI_HH_S	22	SI_SPLP_LEACHATE	23	SULFIDE_Leachate	24	TKN_Leachate

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609B80-001	SONIC-1 10ft bsg	Soil	9/26/2016 11:10	☐												
1609B80-002	S1 15ft Chem Dose 1	Soil	9/26/2016 11:25	☐	C											
1609B80-002	S1 15ft Chem Dose 2	Soil	9/26/2016 11:25	☐	D											
1609B80-002	SONIC-1 15ft bsg	Soil	9/26/2016 11:25	☐												
1609B80-003	S-1 20ft Chem Dose 1	Soil	9/26/2016 11:50	☐	B											
1609B80-003	S-1 20ft Chem Dose 2	Soil	9/26/2016 11:50	☐	C											
1609B80-003	SONIC-1 20ft bsg	Soil	9/26/2016 11:50	☐												
1609B80-004	SONIC-1 25ft bsg	Soil	9/26/2016 12:15	☐												
1609B80-005	S-1 30ft Chem Dose 1	Soil	9/26/2016 13:00	☐	C											
1609B80-005	S-1 30ft Chem Dose 2	Soil	9/26/2016 13:00	☐	D											
1609B80-005	SONIC-1 30ft bsg	Soil	9/26/2016 13:00	☐												
1609B80-006	SONIC-1 35ft bsg	Soil	9/26/2016 13:10	☐												
1609B80-007	SONIC-1 40ft bsg	Soil	9/26/2016 13:30	☐												
1609B80-008	SONIC-1 12.5-13.0	Soil	9/26/2016 11:10	☐												
1609B80-009	SONIC-1 18.0-18.5	Soil	9/26/2016 11:25	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1609B80-010	SONIC-1 24.0-24.5	Soil	9/26/2016 11:50	☐												
1609B80-011	SONIC-1 28.0-28.5'	Soil	9/26/2016 12:15	☐												
1609B80-012	SONIC-1 32.5-33.5'	Soil	9/26/2016 13:00	☐												
1609B80-013	SONIC-1 38.0-38.5'	Soil	9/26/2016 13:30	☐												
1609B80-014	S-2 10ft Chem Dose 1	Soil	9/26/2016 15:30	☐	C											
1609B80-014	S-2 10ft Chem Dose 2	Soil	9/26/2016 15:30	☐	D											
1609B80-014	SONIC-2 10ft	Soil	9/26/2016 15:30	☐												
1609B80-015	SONIC-2 15ft	Soil	9/26/2016 15:35	☐												
1609B80-016	SONIC-2 20ft	Soil	9/26/2016 15:40	☐												
1609B80-017	S-2 25ft Chem Dose 1	Soil	9/26/2016 15:45	☐	C											
1609B80-017	S-2 25ft Chem Dose 2	Soil	9/26/2016 15:45	☐	D											
1609B80-017	SONIC-2 25ft	Soil	9/26/2016 15:45	☐												
1609B80-018	SONIC-2 8.0-9.0'	Soil	9/26/2016 15:15	☐												
1609B80-019	SONIC-2 13.0-13.5	Soil	9/26/2016 15:20	☐												
1609B80-020	SONIC-2 18.0-18.5	Soil	9/26/2016 15:32	☐												

Test Legend:

1	TURBIDITY_Leachate	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 3 of 3

WorkOrder: 1609B80 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/26/2016**
Date Logged: **09/27/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609B80-021	SONIC-2 24.0-25.5	Soil	9/26/2016 16:10	☐												

Test Legend:

1	**TURBIDITY_Leachate**	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 014A, 015A, 016A, 017A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 003B, 003C, 005C, 005D, 014C, 014D, 017C, 017D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609B80
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT
Date Logged: 9/27/2016

☐WaterTrax ☐WriteOn ☐EDF ☐Excel ☐Fax ☐Email ☐HardCopy ☐ThirdParty ☑J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-001A	SONIC-1 10ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 11:10	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-002A	SONIC-1 15ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 11:25	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-002B	SONIC-1 15ft bsg	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/26/2016 11:25	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609B80-002C	S1 15ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 11:25	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-002D	S1 15ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 11:25	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-IPR

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

Work Order: 1609B80
QC Level:
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-002D	S1 15ft Chem Dose 2	Soil	E415.3 (IC as CO2)	1	Various	☐	9/26/2016 11:25	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-003A	SONIC-1 20ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 11:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-003B	S-1 20ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 11:50	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-003C	S-1 20ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 11:50	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
1609B80-004A	SONIC-1 25ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 12:15	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-IPR
Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

Work Order: 1609B80
QC Level:
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-004B	SONIC-1 25ft bsg	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/26/2016 12:15	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609B80-005A	SONIC-1 30ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 13:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^-$>			☐		5 days		☐	
1609B80-005B	SONIC-1 30ft bsg	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/26/2016 13:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609B80-005C	S-1 30ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 13:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609B80
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-005D	S-1 30ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 13:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-006A	SONIC-1 35ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 13:10	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-007A	SONIC-1 40ft bsg	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 13:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-008A	SONIC-1 12.5-13.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 11:10	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-009A	SONIC-1 18.0-18.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 11:25	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-010A	SONIC-1 24.0-24.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 11:50	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-IPR

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

Work Order: 1609B80
QC Level:
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-011A	SONIC-1 28.0-28.5'	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 12:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-012A	SONIC-1 32.5-33.5'	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 13:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-013A	SONIC-1 38.0-38.5'	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 13:30	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-014A	SONIC-2 10ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 15:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609B80-014B	SONIC-2 10ft	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/26/2016 15:30	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609B80-014C	S-2 10ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 15:30	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-IPR

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

Work Order: 1609B80
QC Level:
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-014C	S-2 10ft Chem Dose 1	Soil	Todd Dissolution Study	1	Various	☐	9/26/2016 15:30	5 days		☐	
1609B80-014D	S-2 10ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 15:30	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-015A	SONIC-2 15ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 15:35	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$>			☐		5 days		☐	
1609B80-016A	SONIC-2 20ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 15:40	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$>			☐		5 days		☐	
1609B80-017A	SONIC-2 25ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/26/2016 15:45	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$>			☐		5 days		☐	
1609B80-017B	SONIC-2 25ft	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/26/2016 15:45	5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609B80
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-017B	SONIC-2 25ft	Soil	E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>	1	16OZ GJ	☐	9/26/2016 15:45	5 days		☐	
1609B80-017C	S-2 25ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 15:45	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-017D	S-2 25ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/26/2016 15:45	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609B80-018A	SONIC-2 8.0-9.0'	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 15:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-019A	SONIC-2 13.0-13.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 15:20	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609B80-020A	SONIC-2 18.0-18.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 15:32	5 days		☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-IPR

Comments: HH extraction for Metals, and CR6 added 10/11/16 STAT

Work Order: 1609B80
QC Level:
Date Logged: 9/27/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609B80-020A	SONIC-2 18.0-18.5	Soil	SW8260B (VOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 15:32	5 days		☐	
1609B80-021A	SONIC-2 24.0-25.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/26/2016 16:10	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

MAI Work Order # 1609B80

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush ☐ 2 Day Rush ☐ 3 Day Rush ☐ STD ✓ Quote #
J-Flag / MDL ☐ ESL ☐ Cleanup Approved ☐ Bottle Order #
Delivery Format: GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510-747-6920
Project Name/#: SCVWD - IPR
Project Location: Ford Road Ponds, San Jose PO #
Sampler Signature: William E. Motzer

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HH Extraction *	ClO4, NO3 *	SPLC Leachate *	VOC / SVOC *
SonicC-1 10 ft bsg	09-26-16	1110	G	Soil	None	✓	✓	✓	
15 ft bsg	09-26-16	1125	G	Soil	None	✓	✓	✓	
20 ft bsg	09-26-16	1150	G	Soil	None	✓	✓	✓	
25 ft bsg	09-26-16	1215	G	Soil	None	✓	✓	✓	
30 ft bsg	09-26-16	1300	G	Soil	None	✓	✓	✓	
35 ft bsg	09-26-16	1310	G	Soil	None	✓	✓	✓	
40 ft bsg	09-26-16	1330	G	Soil	None	✓	✓	✓	
SonicC-1 12.5-13.0	09-26-16	1110	BT	Soil	None				✓
18.0-18.5	09-26-16	1125	BT	Soil	None				✓
24.0-24.5	09-26-16	1150	BT	Soil	None				✓

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
William E. Motzer	09-26-16	1645		9/26/16	1645
	9/26/16	1915		9/26/16	1915

Comments / Instructions
Per instructions sent to lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other
Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 3.6 °C Initials

Page 1 of 2

General COC

MAI Work Order # ____________

5

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510-747-6920
Project Name/#: SCVWD-IPR
Project Location: Ford Road Ponds, San Jose PO #
Sampler Signature: William E. Motzer

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	VOCs / SVOCs	1-1H Extraction	ClO_4, NO_3	SPLC Leachate
Sonic-1 28.0-28.5'	09-26-16	1215	BT	Soil	None	✓			
" " 32.5-33.5'	09-26-16	1300	BT	Soil	None	✓			
" " 38.0-38.5'	0926-16	1330	BT	Soil	None	✓			
Sonic-2 10 ft	09-26-16	1530	G	Soil	none		✓	✓	✓
Sonic-2 15 ft	09-26-16	1535	G	Soil	none		✓	✓	✓
Sonic-2 20 ft	09-26-16	1540	G	Soil	none		✓	✓	✓
Sonic-2 25 ft	09-26-16	1545	G	Soil	none				
Sonic-2 ~~5 ft~~ 8.0-9.0'	09-26-16	1515	BT	Soil	none	✓			
13.0-13.5	09-26-16	1520	BT	Soil	None	✓			
18.0-18.5	0926-16	1532	BT	Soil	None	✓			

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
William E. Motzer	09-26-16	1645		9/26/16	1645
	9/26/16	1915		9/26/16	1915

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ________ °C Initials ________

Page 2 of ___

General COC

MAI Work Order # ____________

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD ✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved			Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele:
Project Name/#: SCVWD - IPR
Project Location: Ford Road Ponds PO #
Sampler Signature: William E. Motzer

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	VOC/SVOC
SMCC-2 24.0-25.5	092616	1610	BS	Soil		✓

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
William E. Motzer	09-26-16	1645		9/26/16	1645
	9/26/16	1915		9/26/16	1915

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 3 of 3

Sample Receipt Checklist

Client Name: **Todd Groundwater**
Project Name: **SCVWD-IPR**
WorkOrder №: **1609B80** Matrix: Soil
Carrier: Courier

Date and Time Received: **9/26/2016 19:15**
Date Logged: **9/27/2016**
Received by: Jena Alfaro
Logged by: Jena Alfaro

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 3.6°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

From: Edwin Lin <ELin@toddgroundwater.com>
Sent: Tuesday, November 08, 2016 9:38 AM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. - Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

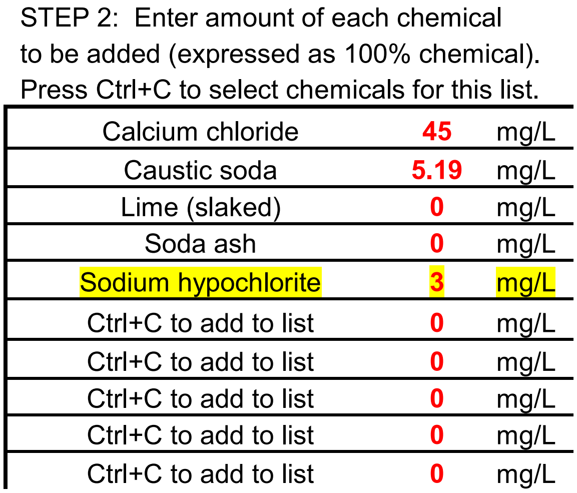
rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?



STEP 2: Enter amount of each chemical
to be added (expressed as 100% chemical).
Press Ctrl+C to select chemicals for this list.

Calcium chloride	45	mg/L
Caustic soda	5.19	mg/L
Lime (slaked)	0	mg/L
Soda ash	0	mg/L
Sodium hypochlorite	3	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609C37 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: SCVWD-CPR

Project Received: 09/27/2016

Analytical Report reviewed & approved for release on 10/10/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

Glossary of Terms & Qualifier Definitions

Client:	Todd Groundwater
Project:	SCVWD-CPR
WorkOrder:	1609C37

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: SCVWD-CPR
WorkOrder: 1609C37

Analytical Qualifiers

B	analyte detected in the associated Method Blank and in the sample
S	surrogate spike recovery outside accepted recovery limits
c2	surrogate recovery outside of the control limits due to matrix interference.

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

Case Narrative

Client: Todd Groundwater

Project: SCVWD-CPR

Work Order: 1609C37

December 09, 2016

Langelier Index by SM2330B Calculations at 23 degrees C:

1609C37-002C; S-2 35ft Chem Dose 1
Langelier Index = -0.609130953

1609C37-002D; S-2 35ft Chem Dose 2
Langelier Index = -0.409412367

1609C37-006C; S-3 10ft Chem Dose 1
Langelier Index = -0.798066546

1609C37-006D; S-3 10ft Chem Dose 2
Langelier Index = --0.685705675

1609C37-007C; S-3 15ft Chem Dose 1
Langelier Index = -1.053312497

1609C37-007D; S-3 15ft Chem Dose 2
Langelier Index = -0.84221718

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater
Project: SCVWD-CPR

Work Order: 1609C37
December 08, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 2: 35
Sonic 3: 10, 15

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.

3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.

4. Leachate from each vial was filtered thru 0.45 micron filter.

5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

Angela Rydelius, Lab Manager

Case Narrative

Client:	Todd Groundwater	**Work Order:**	1609C37
Project:	SCWD-CPR		December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	Chemical dose 1	Chemical dose 2
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	Measured Value: CaCl2 and NaOH	Measured Value: CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-CPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00072**	0.00020	1	11/26/2016 01:13

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00087**	0.00020	1	11/26/2016 01:35

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00073**	0.00020	1	11/26/2016 01:56

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00096**	0.00020	1	11/26/2016 02:17

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-CPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00067**	0.00020	1	11/26/2016 02:38

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**IC2**	**130600**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00077**	0.00020	1	11/26/2016 03:00

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @30ft	**1609C37-001A**	**Soil**	**09/27/2016 08:45**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 14:16
Nitrate as NO3⁻	ND	45	1	09/30/2016 14:16

Surrogates	REC (%)	Limits	Date Analyzed
Formate	96	80-120	09/30/2016 14:16

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @35ft	**1609C37-002A**	**Soil**	**09/27/2016 09:25**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 14:56
Nitrate as NO3⁻	ND	45	1	09/30/2016 14:56

Surrogates	REC (%)	Limits	Date Analyzed
Formate	97	80-120	09/30/2016 14:56

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 @ft5.0	**1609C37-005A**	**Soil**	**09/27/2016 12:00**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 15:35
Nitrate as NO3⁻	ND	45	1	09/30/2016 15:35

Surrogates	REC (%)	Limits	Date Analyzed
Formate	96	80-120	09/30/2016 15:35

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/28/16	**Analytical Method:**	E300.0
Project:	SCVWD-CPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 10ft	**1609C37-006A**	**Soil**	**09/27/2016 12:15**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 16:14
Nitrate as NO3$^-$	ND	45	1	09/30/2016 16:14

Surrogates	REC (%)	Limits	Date Analyzed
Formate	96	80-120	09/30/2016 16:14

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 15ft	**1609C37-007A**	**Soil**	**09/27/2016 12:20**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 16:53
Nitrate as NO3$^-$	ND	45	1	09/30/2016 16:53

Surrogates	REC (%)	Limits	Date Analyzed
Formate	98	80-120	09/30/2016 16:53

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 20ft	**1609C37-008A**	**Soil**	**09/27/2016 12:30**	**IC3**	**127190**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	09/30/2016 17:32
Nitrate as NO3$^-$	ND	45	1	09/30/2016 17:32

Surrogates	REC (%)	Limits	Date Analyzed
Formate	98	80-120	09/30/2016 17:32

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-CPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 16:24
Chloride	**39**	5.0	50	11/25/2016 00:05
Fluoride	**0.19**	0.10	1	11/22/2016 16:24
Nitrate as N	**2.3**	0.10	1	11/22/2016 16:24
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 16:24
Nitrite as N	ND	0.10	1	11/22/2016 16:24
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 16:24
Sulfate	**2.0**	0.10	1	11/22/2016 16:24

Surrogates	REC (%)	Limits	
	94	90-115	11/22/2016 16:24

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 17:03
Chloride	**38**	5.0	50	11/25/2016 00:45
Fluoride	**0.19**	0.10	1	11/22/2016 17:03
Nitrate as N	**2.3**	0.10	1	11/22/2016 17:03
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 17:03
Nitrite as N	ND	0.10	1	11/22/2016 17:03
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 17:03
Sulfate	**2.1**	0.10	1	11/22/2016 17:03

Surrogates	REC (%)	Limits	
	103	90-115	11/22/2016 17:03

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-CPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 17:42
Chloride	**38**	5.0	50	11/25/2016 01:24
Fluoride	ND	0.10	1	11/22/2016 17:42
Nitrate as N	**2.3**	0.10	1	11/22/2016 17:42
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 17:42
Nitrite as N	ND	0.10	1	11/22/2016 17:42
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 17:42
Sulfate	**1.2**	0.10	1	11/22/2016 17:42

Surrogates	REC (%)	Limits	
	96	90-115	11/22/2016 17:42

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 19:40
Chloride	**39**	5.0	50	11/25/2016 02:03
Fluoride	ND	0.10	1	11/22/2016 19:40
Nitrate as N	**2.3**	0.10	1	11/22/2016 19:40
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 19:40
Nitrite as N	ND	0.10	1	11/22/2016 19:40
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 19:40
Sulfate	**1.5**	0.10	1	11/22/2016 19:40

Surrogates	REC (%)	Limits	
	91	90-115	11/22/2016 19:40

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-CPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 20:19
Chloride	**40**	5.0	50	11/25/2016 02:42
Fluoride	**0.11**	0.10	1	11/22/2016 20:19
Nitrate as N	**2.3**	0.10	1	11/22/2016 20:19
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 20:19
Nitrite as N	ND	0.10	1	11/22/2016 20:19
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 20:19
Sulfate	**1.4**	0.10	1	11/22/2016 20:19

Surrogates	REC (%)	Limits	
	90	90-115	11/22/2016 20:19

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**IC3**	**130574**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/22/2016 20:59
Chloride	**41**	5.0	50	11/25/2016 03:21
Fluoride	**0.12**	0.10	1	11/22/2016 20:59
Nitrate as N	**2.3**	0.10	1	11/22/2016 20:59
Nitrate as $NO3^-$	**10**	0.45	1	11/22/2016 20:59
Nitrite as N	ND	0.10	1	11/22/2016 20:59
Nitrite as $NO2^-$	ND	0.33	1	11/22/2016 20:59
Sulfate	**1.5**	0.10	1	11/22/2016 20:59

Surrogates	REC (%)	Qualifiers	Limits	
	60	S	90-115	11/22/2016 20:59

Analyst(s): AO

Analytical Comments: c2

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/22/16	**Analytical Method:**	E314.0
Project:	SCVWD-CPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 15:33

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 16:18

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 17:03

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 17:48

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/22/16	**Analytical Method:**	E314.0
Project:	SCVWD-CPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 18:32

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 19:17

Analyst(s): AO

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCVWD-CPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @30ft	**1609C37-001A**	**Soil**	**09/27/2016 08:45**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 16:00

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @35ft	**1609C37-002A**	**Soil**	**09/27/2016 09:25**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 16:42

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 @ft5.0	**1609C37-005A**	**Soil**	**09/27/2016 12:00**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/03/2016 17:25

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 10ft	**1609C37-006A**	**Soil**	**09/27/2016 12:15**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 16:37

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	9/28/16	**Analytical Method:**	E314.0m
Project:	SCVWD-CPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 15ft	**1609C37-007A**	**Soil**	**09/27/2016 12:20**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 17:20

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 20ft	**1609C37-008A**	**Soil**	**09/27/2016 12:30**	**IC1**	**127264**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 18:02

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 20:20
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 20:20
Benzene	ND	0.0050	1	10/01/2016 20:20
Bromobenzene	ND	0.0050	1	10/01/2016 20:20
Bromochloromethane	ND	0.0050	1	10/01/2016 20:20
Bromodichloromethane	ND	0.0050	1	10/01/2016 20:20
Bromoform	ND	0.0050	1	10/01/2016 20:20
Bromomethane	ND	0.0050	1	10/01/2016 20:20
2-Butanone (MEK)	ND	0.020	1	10/01/2016 20:20
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 20:20
n-Butyl benzene	ND	0.0050	1	10/01/2016 20:20
sec-Butyl benzene	ND	0.0050	1	10/01/2016 20:20
tert-Butyl benzene	ND	0.0050	1	10/01/2016 20:20
Carbon Disulfide	ND	0.0050	1	10/01/2016 20:20
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 20:20
Chlorobenzene	ND	0.0050	1	10/01/2016 20:20
Chloroethane	ND	0.0050	1	10/01/2016 20:20
Chloroform	ND	0.0050	1	10/01/2016 20:20
Chloromethane	ND	0.0050	1	10/01/2016 20:20
2-Chlorotoluene	ND	0.0050	1	10/01/2016 20:20
4-Chlorotoluene	ND	0.0050	1	10/01/2016 20:20
Dibromochloromethane	ND	0.0050	1	10/01/2016 20:20
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 20:20
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 20:20
Dibromomethane	ND	0.0050	1	10/01/2016 20:20
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:20
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:20
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:20
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 20:20
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 20:20
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 20:20
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 20:20
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 20:20
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 20:20
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 20:20
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 20:20
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 20:20

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 20:20
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 20:20
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 20:20
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 20:20
Ethylbenzene	ND	0.0050	1	10/01/2016 20:20
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 20:20
Freon 113	ND	0.0050	1	10/01/2016 20:20
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 20:20
Hexachloroethane	ND	0.0050	1	10/01/2016 20:20
2-Hexanone	ND	0.0050	1	10/01/2016 20:20
Isopropylbenzene	ND	0.0050	1	10/01/2016 20:20
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 20:20
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 20:20
Methylene chloride	ND	0.0050	1	10/01/2016 20:20
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 20:20
Naphthalene	ND	0.0050	1	10/01/2016 20:20
n-Propyl benzene	ND	0.0050	1	10/01/2016 20:20
Styrene	ND	0.0050	1	10/01/2016 20:20
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 20:20
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 20:20
Tetrachloroethene	ND	0.0050	1	10/01/2016 20:20
Toluene	ND	0.0050	1	10/01/2016 20:20
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 20:20
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 20:20
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 20:20
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 20:20
Trichloroethene	ND	0.0050	1	10/01/2016 20:20
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 20:20
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 20:20
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 20:20
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 20:20
Vinyl Chloride	ND	0.0050	1	10/01/2016 20:20
Xylenes, Total	ND	0.0050	1	10/01/2016 20:20

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 20:20
Toluene-d8	108	70-130		10/01/2016 20:20
4-BFB	91	70-130		10/01/2016 20:20
Benzene-d6	82	60-140		10/01/2016 20:20
Ethylbenzene-d10	97	60-140		10/01/2016 20:20
1,2-DCB-d4	71	60-140		10/01/2016 20:20

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	**1609C37-004A**	**Soil**	**09/27/2016 10:00**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 20:59
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 20:59
Benzene	ND	0.0050	1	10/01/2016 20:59
Bromobenzene	ND	0.0050	1	10/01/2016 20:59
Bromochloromethane	ND	0.0050	1	10/01/2016 20:59
Bromodichloromethane	ND	0.0050	1	10/01/2016 20:59
Bromoform	ND	0.0050	1	10/01/2016 20:59
Bromomethane	ND	0.0050	1	10/01/2016 20:59
2-Butanone (MEK)	ND	0.020	1	10/01/2016 20:59
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 20:59
n-Butyl benzene	ND	0.0050	1	10/01/2016 20:59
sec-Butyl benzene	ND	0.0050	1	10/01/2016 20:59
tert-Butyl benzene	ND	0.0050	1	10/01/2016 20:59
Carbon Disulfide	ND	0.0050	1	10/01/2016 20:59
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 20:59
Chlorobenzene	ND	0.0050	1	10/01/2016 20:59
Chloroethane	ND	0.0050	1	10/01/2016 20:59
Chloroform	ND	0.0050	1	10/01/2016 20:59
Chloromethane	ND	0.0050	1	10/01/2016 20:59
2-Chlorotoluene	ND	0.0050	1	10/01/2016 20:59
4-Chlorotoluene	ND	0.0050	1	10/01/2016 20:59
Dibromochloromethane	ND	0.0050	1	10/01/2016 20:59
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 20:59
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 20:59
Dibromomethane	ND	0.0050	1	10/01/2016 20:59
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:59
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:59
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 20:59
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 20:59
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 20:59
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 20:59
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 20:59
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 20:59
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 20:59
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 20:59
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 20:59
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 20:59

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	**1609C37-004A**	**Soil**	**09/27/2016 10:00**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 20:59
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 20:59
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 20:59
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 20:59
Ethylbenzene	ND	0.0050	1	10/01/2016 20:59
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 20:59
Freon 113	ND	0.0050	1	10/01/2016 20:59
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 20:59
Hexachloroethane	ND	0.0050	1	10/01/2016 20:59
2-Hexanone	ND	0.0050	1	10/01/2016 20:59
Isopropylbenzene	ND	0.0050	1	10/01/2016 20:59
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 20:59
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 20:59
Methylene chloride	ND	0.0050	1	10/01/2016 20:59
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 20:59
Naphthalene	ND	0.0050	1	10/01/2016 20:59
n-Propyl benzene	ND	0.0050	1	10/01/2016 20:59
Styrene	ND	0.0050	1	10/01/2016 20:59
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 20:59
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 20:59
Tetrachloroethene	ND	0.0050	1	10/01/2016 20:59
Toluene	ND	0.0050	1	10/01/2016 20:59
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 20:59
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 20:59
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 20:59
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 20:59
Trichloroethene	ND	0.0050	1	10/01/2016 20:59
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 20:59
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 20:59
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 20:59
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 20:59
Vinyl Chloride	ND	0.0050	1	10/01/2016 20:59
Xylenes, Total	ND	0.0050	1	10/01/2016 20:59

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	**1609C37-004A**	**Soil**	**09/27/2016 10:00**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 20:59
Toluene-d8	107	70-130		10/01/2016 20:59
4-BFB	92	70-130		10/01/2016 20:59
Benzene-d6	84	60-140		10/01/2016 20:59
Ethylbenzene-d10	99	60-140		10/01/2016 20:59
1,2-DCB-d4	72	60-140		10/01/2016 20:59

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	1609C37-009A	Soil	09/27/2016 12:00	GC18	127237

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/01/2016 21:38
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/01/2016 21:38
Benzene	ND	0.0050	1	10/01/2016 21:38
Bromobenzene	ND	0.0050	1	10/01/2016 21:38
Bromochloromethane	ND	0.0050	1	10/01/2016 21:38
Bromodichloromethane	ND	0.0050	1	10/01/2016 21:38
Bromoform	ND	0.0050	1	10/01/2016 21:38
Bromomethane	ND	0.0050	1	10/01/2016 21:38
2-Butanone (MEK)	ND	0.020	1	10/01/2016 21:38
t-Butyl alcohol (TBA)	ND	0.050	1	10/01/2016 21:38
n-Butyl benzene	ND	0.0050	1	10/01/2016 21:38
sec-Butyl benzene	ND	0.0050	1	10/01/2016 21:38
tert-Butyl benzene	ND	0.0050	1	10/01/2016 21:38
Carbon Disulfide	ND	0.0050	1	10/01/2016 21:38
Carbon Tetrachloride	ND	0.0050	1	10/01/2016 21:38
Chlorobenzene	ND	0.0050	1	10/01/2016 21:38
Chloroethane	ND	0.0050	1	10/01/2016 21:38
Chloroform	ND	0.0050	1	10/01/2016 21:38
Chloromethane	ND	0.0050	1	10/01/2016 21:38
2-Chlorotoluene	ND	0.0050	1	10/01/2016 21:38
4-Chlorotoluene	ND	0.0050	1	10/01/2016 21:38
Dibromochloromethane	ND	0.0050	1	10/01/2016 21:38
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/01/2016 21:38
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/01/2016 21:38
Dibromomethane	ND	0.0050	1	10/01/2016 21:38
1,2-Dichlorobenzene	ND	0.0050	1	10/01/2016 21:38
1,3-Dichlorobenzene	ND	0.0050	1	10/01/2016 21:38
1,4-Dichlorobenzene	ND	0.0050	1	10/01/2016 21:38
Dichlorodifluoromethane	ND	0.0050	1	10/01/2016 21:38
1,1-Dichloroethane	ND	0.0050	1	10/01/2016 21:38
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/01/2016 21:38
1,1-Dichloroethene	ND	0.0050	1	10/01/2016 21:38
cis-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 21:38
trans-1,2-Dichloroethene	ND	0.0050	1	10/01/2016 21:38
1,2-Dichloropropane	ND	0.0050	1	10/01/2016 21:38
1,3-Dichloropropane	ND	0.0050	1	10/01/2016 21:38
2,2-Dichloropropane	ND	0.0050	1	10/01/2016 21:38

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	**1609C37-009A**	**Soil**	**09/27/2016 12:00**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/01/2016 21:38
cis-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 21:38
trans-1,3-Dichloropropene	ND	0.0050	1	10/01/2016 21:38
Diisopropyl ether (DIPE)	ND	0.0050	1	10/01/2016 21:38
Ethylbenzene	ND	0.0050	1	10/01/2016 21:38
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/01/2016 21:38
Freon 113	ND	0.0050	1	10/01/2016 21:38
Hexachlorobutadiene	ND	0.0050	1	10/01/2016 21:38
Hexachloroethane	ND	0.0050	1	10/01/2016 21:38
2-Hexanone	ND	0.0050	1	10/01/2016 21:38
Isopropylbenzene	ND	0.0050	1	10/01/2016 21:38
4-Isopropyl toluene	ND	0.0050	1	10/01/2016 21:38
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/01/2016 21:38
Methylene chloride	ND	0.0050	1	10/01/2016 21:38
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/01/2016 21:38
Naphthalene	ND	0.0050	1	10/01/2016 21:38
n-Propyl benzene	ND	0.0050	1	10/01/2016 21:38
Styrene	ND	0.0050	1	10/01/2016 21:38
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 21:38
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/01/2016 21:38
Tetrachloroethene	ND	0.0050	1	10/01/2016 21:38
Toluene	ND	0.0050	1	10/01/2016 21:38
1,2,3-Trichlorobenzene	ND	0.0050	1	10/01/2016 21:38
1,2,4-Trichlorobenzene	ND	0.0050	1	10/01/2016 21:38
1,1,1-Trichloroethane	ND	0.0050	1	10/01/2016 21:38
1,1,2-Trichloroethane	ND	0.0050	1	10/01/2016 21:38
Trichloroethene	ND	0.0050	1	10/01/2016 21:38
Trichlorofluoromethane	ND	0.0050	1	10/01/2016 21:38
1,2,3-Trichloropropane	ND	0.0050	1	10/01/2016 21:38
1,2,4-Trimethylbenzene	ND	0.0050	1	10/01/2016 21:38
1,3,5-Trimethylbenzene	ND	0.0050	1	10/01/2016 21:38
Vinyl Chloride	ND	0.0050	1	10/01/2016 21:38
Xylenes, Total	ND	0.0050	1	10/01/2016 21:38

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	**1609C37-009A**	**Soil**	**09/27/2016 12:00**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	87	70-130		10/01/2016 21:38
Toluene-d8	109	70-130		10/01/2016 21:38
4-BFB	90	70-130		10/01/2016 21:38
Benzene-d6	81	60-140		10/01/2016 21:38
Ethylbenzene-d10	97	60-140		10/01/2016 21:38
1,2-DCB-d4	71	60-140		10/01/2016 21:38

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	**1609C37-010A**	**Soil**	**09/27/2016 12:15**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/04/2016 02:23
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/04/2016 02:23
Benzene	ND	0.0050	1	10/04/2016 02:23
Bromobenzene	ND	0.0050	1	10/04/2016 02:23
Bromochloromethane	ND	0.0050	1	10/04/2016 02:23
Bromodichloromethane	ND	0.0050	1	10/04/2016 02:23
Bromoform	ND	0.0050	1	10/04/2016 02:23
Bromomethane	ND	0.0050	1	10/04/2016 02:23
2-Butanone (MEK)	ND	0.020	1	10/04/2016 02:23
t-Butyl alcohol (TBA)	ND	0.050	1	10/04/2016 02:23
n-Butyl benzene	ND	0.0050	1	10/04/2016 02:23
sec-Butyl benzene	ND	0.0050	1	10/04/2016 02:23
tert-Butyl benzene	ND	0.0050	1	10/04/2016 02:23
Carbon Disulfide	ND	0.0050	1	10/04/2016 02:23
Carbon Tetrachloride	ND	0.0050	1	10/04/2016 02:23
Chlorobenzene	ND	0.0050	1	10/04/2016 02:23
Chloroethane	ND	0.0050	1	10/04/2016 02:23
Chloroform	ND	0.0050	1	10/04/2016 02:23
Chloromethane	ND	0.0050	1	10/04/2016 02:23
2-Chlorotoluene	ND	0.0050	1	10/04/2016 02:23
4-Chlorotoluene	ND	0.0050	1	10/04/2016 02:23
Dibromochloromethane	ND	0.0050	1	10/04/2016 02:23
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/04/2016 02:23
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/04/2016 02:23
Dibromomethane	ND	0.0050	1	10/04/2016 02:23
1,2-Dichlorobenzene	ND	0.0050	1	10/04/2016 02:23
1,3-Dichlorobenzene	ND	0.0050	1	10/04/2016 02:23
1,4-Dichlorobenzene	ND	0.0050	1	10/04/2016 02:23
Dichlorodifluoromethane	ND	0.0050	1	10/04/2016 02:23
1,1-Dichloroethane	ND	0.0050	1	10/04/2016 02:23
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/04/2016 02:23
1,1-Dichloroethene	ND	0.0050	1	10/04/2016 02:23
cis-1,2-Dichloroethene	ND	0.0050	1	10/04/2016 02:23
trans-1,2-Dichloroethene	ND	0.0050	1	10/04/2016 02:23
1,2-Dichloropropane	ND	0.0050	1	10/04/2016 02:23
1,3-Dichloropropane	ND	0.0050	1	10/04/2016 02:23
2,2-Dichloropropane	ND	0.0050	1	10/04/2016 02:23

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	**1609C37-010A**	**Soil**	**09/27/2016 12:15**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/04/2016 02:23
cis-1,3-Dichloropropene	ND	0.0050	1	10/04/2016 02:23
trans-1,3-Dichloropropene	ND	0.0050	1	10/04/2016 02:23
Diisopropyl ether (DIPE)	ND	0.0050	1	10/04/2016 02:23
Ethylbenzene	ND	0.0050	1	10/04/2016 02:23
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/04/2016 02:23
Freon 113	ND	0.0050	1	10/04/2016 02:23
Hexachlorobutadiene	ND	0.0050	1	10/04/2016 02:23
Hexachloroethane	ND	0.0050	1	10/04/2016 02:23
2-Hexanone	ND	0.0050	1	10/04/2016 02:23
Isopropylbenzene	ND	0.0050	1	10/04/2016 02:23
4-Isopropyl toluene	ND	0.0050	1	10/04/2016 02:23
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/04/2016 02:23
Methylene chloride	ND	0.0050	1	10/04/2016 02:23
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/04/2016 02:23
Naphthalene	ND	0.0050	1	10/04/2016 02:23
n-Propyl benzene	ND	0.0050	1	10/04/2016 02:23
Styrene	ND	0.0050	1	10/04/2016 02:23
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/04/2016 02:23
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/04/2016 02:23
Tetrachloroethene	ND	0.0050	1	10/04/2016 02:23
Toluene	ND	0.0050	1	10/04/2016 02:23
1,2,3-Trichlorobenzene	ND	0.0050	1	10/04/2016 02:23
1,2,4-Trichlorobenzene	ND	0.0050	1	10/04/2016 02:23
1,1,1-Trichloroethane	ND	0.0050	1	10/04/2016 02:23
1,1,2-Trichloroethane	ND	0.0050	1	10/04/2016 02:23
Trichloroethene	ND	0.0050	1	10/04/2016 02:23
Trichlorofluoromethane	ND	0.0050	1	10/04/2016 02:23
1,2,3-Trichloropropane	ND	0.0050	1	10/04/2016 02:23
1,2,4-Trimethylbenzene	ND	0.0050	1	10/04/2016 02:23
1,3,5-Trimethylbenzene	ND	0.0050	1	10/04/2016 02:23
Vinyl Chloride	ND	0.0050	1	10/04/2016 02:23
Xylenes, Total	ND	0.0050	1	10/04/2016 02:23

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	**1609C37-010A**	**Soil**	**09/27/2016 12:15**	**GC18**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	89	70-130		10/04/2016 02:23
Toluene-d8	108	70-130		10/04/2016 02:23
4-BFB	87	70-130		10/04/2016 02:23
Benzene-d6	87	60-140		10/04/2016 02:23
Ethylbenzene-d10	101	60-140		10/04/2016 02:23
1,2-DCB-d4	74	60-140		10/04/2016 02:23

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC10**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/03/2016 19:26
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/03/2016 19:26
Benzene	ND	0.0050	1	10/03/2016 19:26
Bromobenzene	ND	0.0050	1	10/03/2016 19:26
Bromochloromethane	ND	0.0050	1	10/03/2016 19:26
Bromodichloromethane	ND	0.0050	1	10/03/2016 19:26
Bromoform	ND	0.0050	1	10/03/2016 19:26
Bromomethane	ND	0.0050	1	10/03/2016 19:26
2-Butanone (MEK)	ND	0.020	1	10/03/2016 19:26
t-Butyl alcohol (TBA)	ND	0.050	1	10/03/2016 19:26
n-Butyl benzene	ND	0.0050	1	10/03/2016 19:26
sec-Butyl benzene	ND	0.0050	1	10/03/2016 19:26
tert-Butyl benzene	ND	0.0050	1	10/03/2016 19:26
Carbon Disulfide	ND	0.0050	1	10/03/2016 19:26
Carbon Tetrachloride	ND	0.0050	1	10/03/2016 19:26
Chlorobenzene	ND	0.0050	1	10/03/2016 19:26
Chloroethane	ND	0.0050	1	10/03/2016 19:26
Chloroform	ND	0.0050	1	10/03/2016 19:26
Chloromethane	ND	0.0050	1	10/03/2016 19:26
2-Chlorotoluene	ND	0.0050	1	10/03/2016 19:26
4-Chlorotoluene	ND	0.0050	1	10/03/2016 19:26
Dibromochloromethane	ND	0.0050	1	10/03/2016 19:26
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/03/2016 19:26
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/03/2016 19:26
Dibromomethane	ND	0.0050	1	10/03/2016 19:26
1,2-Dichlorobenzene	ND	0.0050	1	10/03/2016 19:26
1,3-Dichlorobenzene	ND	0.0050	1	10/03/2016 19:26
1,4-Dichlorobenzene	ND	0.0050	1	10/03/2016 19:26
Dichlorodifluoromethane	ND	0.0050	1	10/03/2016 19:26
1,1-Dichloroethane	ND	0.0050	1	10/03/2016 19:26
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/03/2016 19:26
1,1-Dichloroethene	ND	0.0050	1	10/03/2016 19:26
cis-1,2-Dichloroethene	ND	0.0050	1	10/03/2016 19:26
trans-1,2-Dichloroethene	ND	0.0050	1	10/03/2016 19:26
1,2-Dichloropropane	ND	0.0050	1	10/03/2016 19:26
1,3-Dichloropropane	ND	0.0050	1	10/03/2016 19:26
2,2-Dichloropropane	ND	0.0050	1	10/03/2016 19:26

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC10**	**127237**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/03/2016 19:26
cis-1,3-Dichloropropene	ND	0.0050	1	10/03/2016 19:26
trans-1,3-Dichloropropene	ND	0.0050	1	10/03/2016 19:26
Diisopropyl ether (DIPE)	ND	0.0050	1	10/03/2016 19:26
Ethylbenzene	ND	0.0050	1	10/03/2016 19:26
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/03/2016 19:26
Freon 113	ND	0.0050	1	10/03/2016 19:26
Hexachlorobutadiene	ND	0.0050	1	10/03/2016 19:26
Hexachloroethane	ND	0.0050	1	10/03/2016 19:26
2-Hexanone	ND	0.0050	1	10/03/2016 19:26
Isopropylbenzene	ND	0.0050	1	10/03/2016 19:26
4-Isopropyl toluene	ND	0.0050	1	10/03/2016 19:26
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/03/2016 19:26
Methylene chloride	ND	0.0050	1	10/03/2016 19:26
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/03/2016 19:26
Naphthalene	ND	0.0050	1	10/03/2016 19:26
n-Propyl benzene	ND	0.0050	1	10/03/2016 19:26
Styrene	ND	0.0050	1	10/03/2016 19:26
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/03/2016 19:26
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/03/2016 19:26
Tetrachloroethene	ND	0.0050	1	10/03/2016 19:26
Toluene	ND	0.0050	1	10/03/2016 19:26
1,2,3-Trichlorobenzene	ND	0.0050	1	10/03/2016 19:26
1,2,4-Trichlorobenzene	ND	0.0050	1	10/03/2016 19:26
1,1,1-Trichloroethane	ND	0.0050	1	10/03/2016 19:26
1,1,2-Trichloroethane	ND	0.0050	1	10/03/2016 19:26
Trichloroethene	ND	0.0050	1	10/03/2016 19:26
Trichlorofluoromethane	ND	0.0050	1	10/03/2016 19:26
1,2,3-Trichloropropane	ND	0.0050	1	10/03/2016 19:26
1,2,4-Trimethylbenzene	ND	0.0050	1	10/03/2016 19:26
1,3,5-Trimethylbenzene	ND	0.0050	1	10/03/2016 19:26
Vinyl Chloride	ND	0.0050	1	10/03/2016 19:26
Xylenes, Total	ND	0.0050	1	10/03/2016 19:26

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/28/16	**Analytical Method:**	SW8260B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC10**	**127237**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	100	70-130		10/03/2016 19:26
Toluene-d8	106	70-130		10/03/2016 19:26
4-BFB	96	70-130		10/03/2016 19:26
Benzene-d6	82	60-140		10/03/2016 19:26
Ethylbenzene-d10	94	60-140		10/03/2016 19:26
1,2-DCB-d4	74	60-140		10/03/2016 19:26

Analyst(s): KF

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/03/2016 18:21
Acenaphthylene	ND	0.25	1	10/03/2016 18:21
Acetochlor	ND	0.25	1	10/03/2016 18:21
Anthracene	ND	0.25	1	10/03/2016 18:21
Benzidine	ND	1.3	1	10/03/2016 18:21
Benzo (a) anthracene	ND	0.25	1	10/03/2016 18:21
Benzo (a) pyrene	ND	0.25	1	10/03/2016 18:21
Benzo (b) fluoranthene	ND	0.25	1	10/03/2016 18:21
Benzo (g,h,i) perylene	ND	0.25	1	10/03/2016 18:21
Benzo (k) fluoranthene	ND	0.25	1	10/03/2016 18:21
Benzyl Alcohol	ND	1.3	1	10/03/2016 18:21
1,1-Biphenyl	ND	0.25	1	10/03/2016 18:21
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/03/2016 18:21
Bis (2-chloroethyl) Ether	ND	0.25	1	10/03/2016 18:21
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/03/2016 18:21
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/03/2016 18:21
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/03/2016 18:21
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/03/2016 18:21
Butylbenzyl Phthalate	ND	0.25	1	10/03/2016 18:21
4-Chloroaniline	ND	0.50	1	10/03/2016 18:21
4-Chloro-3-methylphenol	ND	0.25	1	10/03/2016 18:21
2-Chloronaphthalene	ND	0.25	1	10/03/2016 18:21
2-Chlorophenol	ND	0.25	1	10/03/2016 18:21
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/03/2016 18:21
Chrysene	ND	0.25	1	10/03/2016 18:21
Dibenzo (a,h) anthracene	ND	0.25	1	10/03/2016 18:21
Dibenzofuran	ND	0.25	1	10/03/2016 18:21
Di-n-butyl Phthalate	ND	0.25	1	10/03/2016 18:21
1,2-Dichlorobenzene	ND	0.25	1	10/03/2016 18:21
1,3-Dichlorobenzene	ND	0.25	1	10/03/2016 18:21
1,4-Dichlorobenzene	ND	0.25	1	10/03/2016 18:21
3,3-Dichlorobenzidine	ND	0.50	1	10/03/2016 18:21
2,4-Dichlorophenol	ND	0.25	1	10/03/2016 18:21
Diethyl Phthalate	ND	0.25	1	10/03/2016 18:21
2,4-Dimethylphenol	ND	0.25	1	10/03/2016 18:21
Dimethyl Phthalate	ND	0.25	1	10/03/2016 18:21
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/03/2016 18:21

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/03/2016 18:21
2,4-Dinitrotoluene	ND	0.25	1	10/03/2016 18:21
2,6-Dinitrotoluene	ND	0.25	1	10/03/2016 18:21
Di-n-octyl Phthalate	ND	0.50	1	10/03/2016 18:21
1,2-Diphenylhydrazine	ND	0.25	1	10/03/2016 18:21
Fluoranthene	ND	0.25	1	10/03/2016 18:21
Fluorene	ND	0.25	1	10/03/2016 18:21
Hexachlorobenzene	ND	0.25	1	10/03/2016 18:21
Hexachlorobutadiene	ND	0.25	1	10/03/2016 18:21
Hexachlorocyclopentadiene	ND	1.3	1	10/03/2016 18:21
Hexachloroethane	ND	0.25	1	10/03/2016 18:21
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/03/2016 18:21
Isophorone	ND	0.25	1	10/03/2016 18:21
2-Methylnaphthalene	ND	0.25	1	10/03/2016 18:21
2-Methylphenol (o-Cresol)	ND	0.25	1	10/03/2016 18:21
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/03/2016 18:21
Naphthalene	ND	0.25	1	10/03/2016 18:21
2-Nitroaniline	ND	1.3	1	10/03/2016 18:21
3-Nitroaniline	ND	1.3	1	10/03/2016 18:21
4-Nitroaniline	ND	1.3	1	10/03/2016 18:21
Nitrobenzene	ND	0.25	1	10/03/2016 18:21
2-Nitrophenol	ND	1.3	1	10/03/2016 18:21
4-Nitrophenol	ND	1.3	1	10/03/2016 18:21
N-Nitrosodiphenylamine	ND	0.25	1	10/03/2016 18:21
N-Nitrosodi-n-propylamine	ND	0.25	1	10/03/2016 18:21
Pentachlorophenol	ND	1.3	1	10/03/2016 18:21
Phenanthrene	ND	0.25	1	10/03/2016 18:21
Phenol	ND	0.25	1	10/03/2016 18:21
Pyrene	ND	0.25	1	10/03/2016 18:21
1,2,4-Trichlorobenzene	ND	0.25	1	10/03/2016 18:21
2,4,5-Trichlorophenol	ND	0.25	1	10/03/2016 18:21
2,4,6-Trichlorophenol	ND	0.25	1	10/03/2016 18:21

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 27.5-28.0	**1609C37-003A**	**Soil**	**09/27/2016 08:45**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	101	30-130		10/03/2016 18:21
Phenol-d5	92	30-130		10/03/2016 18:21
Nitrobenzene-d5	88	30-130		10/03/2016 18:21
2-Fluorobiphenyl	76	30-130		10/03/2016 18:21
2,4,6-Tribromophenol	38	16-130		10/03/2016 18:21
4-Terphenyl-d14	73	30-130		10/03/2016 18:21

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	**1609C37-004A**	**Soil**	**09/27/2016 10:00**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/03/2016 18:50
Acenaphthylene	ND	0.25	1	10/03/2016 18:50
Acetochlor	ND	0.25	1	10/03/2016 18:50
Anthracene	ND	0.25	1	10/03/2016 18:50
Benzidine	ND	1.3	1	10/03/2016 18:50
Benzo (a) anthracene	ND	0.25	1	10/03/2016 18:50
Benzo (a) pyrene	ND	0.25	1	10/03/2016 18:50
Benzo (b) fluoranthene	ND	0.25	1	10/03/2016 18:50
Benzo (g,h,i) perylene	ND	0.25	1	10/03/2016 18:50
Benzo (k) fluoranthene	ND	0.25	1	10/03/2016 18:50
Benzyl Alcohol	ND	1.3	1	10/03/2016 18:50
1,1-Biphenyl	ND	0.25	1	10/03/2016 18:50
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/03/2016 18:50
Bis (2-chloroethyl) Ether	ND	0.25	1	10/03/2016 18:50
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/03/2016 18:50
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/03/2016 18:50
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/03/2016 18:50
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/03/2016 18:50
Butylbenzyl Phthalate	ND	0.25	1	10/03/2016 18:50
4-Chloroaniline	ND	0.50	1	10/03/2016 18:50
4-Chloro-3-methylphenol	ND	0.25	1	10/03/2016 18:50
2-Chloronaphthalene	ND	0.25	1	10/03/2016 18:50
2-Chlorophenol	ND	0.25	1	10/03/2016 18:50
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/03/2016 18:50
Chrysene	ND	0.25	1	10/03/2016 18:50
Dibenzo (a,h) anthracene	ND	0.25	1	10/03/2016 18:50
Dibenzofuran	ND	0.25	1	10/03/2016 18:50
Di-n-butyl Phthalate	ND	0.25	1	10/03/2016 18:50
1,2-Dichlorobenzene	ND	0.25	1	10/03/2016 18:50
1,3-Dichlorobenzene	ND	0.25	1	10/03/2016 18:50
1,4-Dichlorobenzene	ND	0.25	1	10/03/2016 18:50
3,3-Dichlorobenzidine	ND	0.50	1	10/03/2016 18:50
2,4-Dichlorophenol	ND	0.25	1	10/03/2016 18:50
Diethyl Phthalate	ND	0.25	1	10/03/2016 18:50
2,4-Dimethylphenol	ND	0.25	1	10/03/2016 18:50
Dimethyl Phthalate	ND	0.25	1	10/03/2016 18:50
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/03/2016 18:50

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	1609C37-004A	Soil	09/27/2016 10:00	GC17	127311

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/03/2016 18:50
2,4-Dinitrotoluene	ND	0.25	1	10/03/2016 18:50
2,6-Dinitrotoluene	ND	0.25	1	10/03/2016 18:50
Di-n-octyl Phthalate	ND	0.50	1	10/03/2016 18:50
1,2-Diphenylhydrazine	ND	0.25	1	10/03/2016 18:50
Fluoranthene	ND	0.25	1	10/03/2016 18:50
Fluorene	ND	0.25	1	10/03/2016 18:50
Hexachlorobenzene	ND	0.25	1	10/03/2016 18:50
Hexachlorobutadiene	ND	0.25	1	10/03/2016 18:50
Hexachlorocyclopentadiene	ND	1.3	1	10/03/2016 18:50
Hexachloroethane	ND	0.25	1	10/03/2016 18:50
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/03/2016 18:50
Isophorone	ND	0.25	1	10/03/2016 18:50
2-Methylnaphthalene	ND	0.25	1	10/03/2016 18:50
2-Methylphenol (o-Cresol)	ND	0.25	1	10/03/2016 18:50
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/03/2016 18:50
Naphthalene	ND	0.25	1	10/03/2016 18:50
2-Nitroaniline	ND	1.3	1	10/03/2016 18:50
3-Nitroaniline	ND	1.3	1	10/03/2016 18:50
4-Nitroaniline	ND	1.3	1	10/03/2016 18:50
Nitrobenzene	ND	0.25	1	10/03/2016 18:50
2-Nitrophenol	ND	1.3	1	10/03/2016 18:50
4-Nitrophenol	ND	1.3	1	10/03/2016 18:50
N-Nitrosodiphenylamine	ND	0.25	1	10/03/2016 18:50
N-Nitrosodi-n-propylamine	ND	0.25	1	10/03/2016 18:50
Pentachlorophenol	ND	1.3	1	10/03/2016 18:50
Phenanthrene	ND	0.25	1	10/03/2016 18:50
Phenol	ND	0.25	1	10/03/2016 18:50
Pyrene	ND	0.25	1	10/03/2016 18:50
1,2,4-Trichlorobenzene	ND	0.25	1	10/03/2016 18:50
2,4,5-Trichlorophenol	ND	0.25	1	10/03/2016 18:50
2,4,6-Trichlorophenol	ND	0.25	1	10/03/2016 18:50

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 33.0-33.5	**1609C37-004A**	**Soil**	**09/27/2016 10:00**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	105	30-130		10/03/2016 18:50
Phenol-d5	94	30-130		10/03/2016 18:50
Nitrobenzene-d5	89	30-130		10/03/2016 18:50
2-Fluorobiphenyl	77	30-130		10/03/2016 18:50
2,4,6-Tribromophenol	41	16-130		10/03/2016 18:50
4-Terphenyl-d14	76	30-130		10/03/2016 18:50

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	**1609C37-009A**	**Soil**	**09/27/2016 12:00**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/03/2016 19:18
Acenaphthylene	ND	0.25	1	10/03/2016 19:18
Acetochlor	ND	0.25	1	10/03/2016 19:18
Anthracene	ND	0.25	1	10/03/2016 19:18
Benzidine	ND	1.3	1	10/03/2016 19:18
Benzo (a) anthracene	ND	0.25	1	10/03/2016 19:18
Benzo (a) pyrene	ND	0.25	1	10/03/2016 19:18
Benzo (b) fluoranthene	ND	0.25	1	10/03/2016 19:18
Benzo (g,h,i) perylene	ND	0.25	1	10/03/2016 19:18
Benzo (k) fluoranthene	ND	0.25	1	10/03/2016 19:18
Benzyl Alcohol	ND	1.3	1	10/03/2016 19:18
1,1-Biphenyl	ND	0.25	1	10/03/2016 19:18
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/03/2016 19:18
Bis (2-chloroethyl) Ether	ND	0.25	1	10/03/2016 19:18
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/03/2016 19:18
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/03/2016 19:18
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/03/2016 19:18
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/03/2016 19:18
Butylbenzyl Phthalate	ND	0.25	1	10/03/2016 19:18
4-Chloroaniline	ND	0.50	1	10/03/2016 19:18
4-Chloro-3-methylphenol	ND	0.25	1	10/03/2016 19:18
2-Chloronaphthalene	ND	0.25	1	10/03/2016 19:18
2-Chlorophenol	ND	0.25	1	10/03/2016 19:18
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/03/2016 19:18
Chrysene	ND	0.25	1	10/03/2016 19:18
Dibenzo (a,h) anthracene	ND	0.25	1	10/03/2016 19:18
Dibenzofuran	ND	0.25	1	10/03/2016 19:18
Di-n-butyl Phthalate	ND	0.25	1	10/03/2016 19:18
1,2-Dichlorobenzene	ND	0.25	1	10/03/2016 19:18
1,3-Dichlorobenzene	ND	0.25	1	10/03/2016 19:18
1,4-Dichlorobenzene	ND	0.25	1	10/03/2016 19:18
3,3-Dichlorobenzidine	ND	0.50	1	10/03/2016 19:18
2,4-Dichlorophenol	ND	0.25	1	10/03/2016 19:18
Diethyl Phthalate	ND	0.25	1	10/03/2016 19:18
2,4-Dimethylphenol	ND	0.25	1	10/03/2016 19:18
Dimethyl Phthalate	ND	0.25	1	10/03/2016 19:18
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/03/2016 19:18

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	**1609C37-009A**	**Soil**	**09/27/2016 12:00**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/03/2016 19:18
2,4-Dinitrotoluene	ND	0.25	1	10/03/2016 19:18
2,6-Dinitrotoluene	ND	0.25	1	10/03/2016 19:18
Di-n-octyl Phthalate	ND	0.50	1	10/03/2016 19:18
1,2-Diphenylhydrazine	ND	0.25	1	10/03/2016 19:18
Fluoranthene	ND	0.25	1	10/03/2016 19:18
Fluorene	ND	0.25	1	10/03/2016 19:18
Hexachlorobenzene	ND	0.25	1	10/03/2016 19:18
Hexachlorobutadiene	ND	0.25	1	10/03/2016 19:18
Hexachlorocyclopentadiene	ND	1.3	1	10/03/2016 19:18
Hexachloroethane	ND	0.25	1	10/03/2016 19:18
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/03/2016 19:18
Isophorone	ND	0.25	1	10/03/2016 19:18
2-Methylnaphthalene	ND	0.25	1	10/03/2016 19:18
2-Methylphenol (o-Cresol)	ND	0.25	1	10/03/2016 19:18
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/03/2016 19:18
Naphthalene	ND	0.25	1	10/03/2016 19:18
2-Nitroaniline	ND	1.3	1	10/03/2016 19:18
3-Nitroaniline	ND	1.3	1	10/03/2016 19:18
4-Nitroaniline	ND	1.3	1	10/03/2016 19:18
Nitrobenzene	ND	0.25	1	10/03/2016 19:18
2-Nitrophenol	ND	1.3	1	10/03/2016 19:18
4-Nitrophenol	ND	1.3	1	10/03/2016 19:18
N-Nitrosodiphenylamine	ND	0.25	1	10/03/2016 19:18
N-Nitrosodi-n-propylamine	ND	0.25	1	10/03/2016 19:18
Pentachlorophenol	ND	1.3	1	10/03/2016 19:18
Phenanthrene	ND	0.25	1	10/03/2016 19:18
Phenol	ND	0.25	1	10/03/2016 19:18
Pyrene	ND	0.25	1	10/03/2016 19:18
1,2,4-Trichlorobenzene	ND	0.25	1	10/03/2016 19:18
2,4,5-Trichlorophenol	ND	0.25	1	10/03/2016 19:18
2,4,6-Trichlorophenol	ND	0.25	1	10/03/2016 19:18

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 7.0-7.5	**1609C37-009A**	**Soil**	**09/27/2016 12:00**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	116	30-130		10/03/2016 19:18
Phenol-d5	104	30-130		10/03/2016 19:18
Nitrobenzene-d5	99	30-130		10/03/2016 19:18
2-Fluorobiphenyl	85	30-130		10/03/2016 19:18
2,4,6-Tribromophenol	39	16-130		10/03/2016 19:18
4-Terphenyl-d14	91	30-130		10/03/2016 19:18

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	1609C37-010A	Soil	09/27/2016 12:15	GC17	127311

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/03/2016 19:47
Acenaphthylene	ND	0.25	1	10/03/2016 19:47
Acetochlor	ND	0.25	1	10/03/2016 19:47
Anthracene	ND	0.25	1	10/03/2016 19:47
Benzidine	ND	1.3	1	10/03/2016 19:47
Benzo (a) anthracene	ND	0.25	1	10/03/2016 19:47
Benzo (a) pyrene	ND	0.25	1	10/03/2016 19:47
Benzo (b) fluoranthene	ND	0.25	1	10/03/2016 19:47
Benzo (g,h,i) perylene	ND	0.25	1	10/03/2016 19:47
Benzo (k) fluoranthene	ND	0.25	1	10/03/2016 19:47
Benzyl Alcohol	ND	1.3	1	10/03/2016 19:47
1,1-Biphenyl	ND	0.25	1	10/03/2016 19:47
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/03/2016 19:47
Bis (2-chloroethyl) Ether	ND	0.25	1	10/03/2016 19:47
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/03/2016 19:47
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/03/2016 19:47
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/03/2016 19:47
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/03/2016 19:47
Butylbenzyl Phthalate	ND	0.25	1	10/03/2016 19:47
4-Chloroaniline	ND	0.50	1	10/03/2016 19:47
4-Chloro-3-methylphenol	ND	0.25	1	10/03/2016 19:47
2-Chloronaphthalene	ND	0.25	1	10/03/2016 19:47
2-Chlorophenol	ND	0.25	1	10/03/2016 19:47
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/03/2016 19:47
Chrysene	ND	0.25	1	10/03/2016 19:47
Dibenzo (a,h) anthracene	ND	0.25	1	10/03/2016 19:47
Dibenzofuran	ND	0.25	1	10/03/2016 19:47
Di-n-butyl Phthalate	ND	0.25	1	10/03/2016 19:47
1,2-Dichlorobenzene	ND	0.25	1	10/03/2016 19:47
1,3-Dichlorobenzene	ND	0.25	1	10/03/2016 19:47
1,4-Dichlorobenzene	ND	0.25	1	10/03/2016 19:47
3,3-Dichlorobenzidine	ND	0.50	1	10/03/2016 19:47
2,4-Dichlorophenol	ND	0.25	1	10/03/2016 19:47
Diethyl Phthalate	ND	0.25	1	10/03/2016 19:47
2,4-Dimethylphenol	ND	0.25	1	10/03/2016 19:47
Dimethyl Phthalate	ND	0.25	1	10/03/2016 19:47
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/03/2016 19:47

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	**1609C37-010A**	**Soil**	**09/27/2016 12:15**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/03/2016 19:47
2,4-Dinitrotoluene	ND	0.25	1	10/03/2016 19:47
2,6-Dinitrotoluene	ND	0.25	1	10/03/2016 19:47
Di-n-octyl Phthalate	ND	0.50	1	10/03/2016 19:47
1,2-Diphenylhydrazine	ND	0.25	1	10/03/2016 19:47
Fluoranthene	ND	0.25	1	10/03/2016 19:47
Fluorene	ND	0.25	1	10/03/2016 19:47
Hexachlorobenzene	ND	0.25	1	10/03/2016 19:47
Hexachlorobutadiene	ND	0.25	1	10/03/2016 19:47
Hexachlorocyclopentadiene	ND	1.3	1	10/03/2016 19:47
Hexachloroethane	ND	0.25	1	10/03/2016 19:47
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/03/2016 19:47
Isophorone	ND	0.25	1	10/03/2016 19:47
2-Methylnaphthalene	ND	0.25	1	10/03/2016 19:47
2-Methylphenol (o-Cresol)	ND	0.25	1	10/03/2016 19:47
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/03/2016 19:47
Naphthalene	ND	0.25	1	10/03/2016 19:47
2-Nitroaniline	ND	1.3	1	10/03/2016 19:47
3-Nitroaniline	ND	1.3	1	10/03/2016 19:47
4-Nitroaniline	ND	1.3	1	10/03/2016 19:47
Nitrobenzene	ND	0.25	1	10/03/2016 19:47
2-Nitrophenol	ND	1.3	1	10/03/2016 19:47
4-Nitrophenol	ND	1.3	1	10/03/2016 19:47
N-Nitrosodiphenylamine	ND	0.25	1	10/03/2016 19:47
N-Nitrosodi-n-propylamine	ND	0.25	1	10/03/2016 19:47
Pentachlorophenol	ND	1.3	1	10/03/2016 19:47
Phenanthrene	ND	0.25	1	10/03/2016 19:47
Phenol	ND	0.25	1	10/03/2016 19:47
Pyrene	ND	0.25	1	10/03/2016 19:47
1,2,4-Trichlorobenzene	ND	0.25	1	10/03/2016 19:47
2,4,5-Trichlorophenol	ND	0.25	1	10/03/2016 19:47
2,4,6-Trichlorophenol	ND	0.25	1	10/03/2016 19:47

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 14.0-14.5	**1609C37-010A**	**Soil**	**09/27/2016 12:15**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	118	30-130		10/03/2016 19:47
Phenol-d5	107	30-130		10/03/2016 19:47
Nitrobenzene-d5	103	30-130		10/03/2016 19:47
2-Fluorobiphenyl	90	30-130		10/03/2016 19:47
2,4,6-Tribromophenol	40	16-130		10/03/2016 19:47
4-Terphenyl-d14	89	30-130		10/03/2016 19:47

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/03/2016 20:15
Acenaphthylene	ND	0.25	1	10/03/2016 20:15
Acetochlor	ND	0.25	1	10/03/2016 20:15
Anthracene	ND	0.25	1	10/03/2016 20:15
Benzidine	ND	1.3	1	10/03/2016 20:15
Benzo (a) anthracene	ND	0.25	1	10/03/2016 20:15
Benzo (a) pyrene	ND	0.25	1	10/03/2016 20:15
Benzo (b) fluoranthene	ND	0.25	1	10/03/2016 20:15
Benzo (g,h,i) perylene	ND	0.25	1	10/03/2016 20:15
Benzo (k) fluoranthene	ND	0.25	1	10/03/2016 20:15
Benzyl Alcohol	ND	1.3	1	10/03/2016 20:15
1,1-Biphenyl	ND	0.25	1	10/03/2016 20:15
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/03/2016 20:15
Bis (2-chloroethyl) Ether	ND	0.25	1	10/03/2016 20:15
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/03/2016 20:15
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/03/2016 20:15
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/03/2016 20:15
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/03/2016 20:15
Butylbenzyl Phthalate	ND	0.25	1	10/03/2016 20:15
4-Chloroaniline	ND	0.50	1	10/03/2016 20:15
4-Chloro-3-methylphenol	ND	0.25	1	10/03/2016 20:15
2-Chloronaphthalene	ND	0.25	1	10/03/2016 20:15
2-Chlorophenol	ND	0.25	1	10/03/2016 20:15
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/03/2016 20:15
Chrysene	ND	0.25	1	10/03/2016 20:15
Dibenzo (a,h) anthracene	ND	0.25	1	10/03/2016 20:15
Dibenzofuran	ND	0.25	1	10/03/2016 20:15
Di-n-butyl Phthalate	ND	0.25	1	10/03/2016 20:15
1,2-Dichlorobenzene	ND	0.25	1	10/03/2016 20:15
1,3-Dichlorobenzene	ND	0.25	1	10/03/2016 20:15
1,4-Dichlorobenzene	ND	0.25	1	10/03/2016 20:15
3,3-Dichlorobenzidine	ND	0.50	1	10/03/2016 20:15
2,4-Dichlorophenol	ND	0.25	1	10/03/2016 20:15
Diethyl Phthalate	ND	0.25	1	10/03/2016 20:15
2,4-Dimethylphenol	ND	0.25	1	10/03/2016 20:15
Dimethyl Phthalate	ND	0.25	1	10/03/2016 20:15
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/03/2016 20:15

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/03/2016 20:15
2,4-Dinitrotoluene	ND	0.25	1	10/03/2016 20:15
2,6-Dinitrotoluene	ND	0.25	1	10/03/2016 20:15
Di-n-octyl Phthalate	ND	0.50	1	10/03/2016 20:15
1,2-Diphenylhydrazine	ND	0.25	1	10/03/2016 20:15
Fluoranthene	ND	0.25	1	10/03/2016 20:15
Fluorene	ND	0.25	1	10/03/2016 20:15
Hexachlorobenzene	ND	0.25	1	10/03/2016 20:15
Hexachlorobutadiene	ND	0.25	1	10/03/2016 20:15
Hexachlorocyclopentadiene	ND	1.3	1	10/03/2016 20:15
Hexachloroethane	ND	0.25	1	10/03/2016 20:15
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/03/2016 20:15
Isophorone	ND	0.25	1	10/03/2016 20:15
2-Methylnaphthalene	ND	0.25	1	10/03/2016 20:15
2-Methylphenol (o-Cresol)	ND	0.25	1	10/03/2016 20:15
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/03/2016 20:15
Naphthalene	ND	0.25	1	10/03/2016 20:15
2-Nitroaniline	ND	1.3	1	10/03/2016 20:15
3-Nitroaniline	ND	1.3	1	10/03/2016 20:15
4-Nitroaniline	ND	1.3	1	10/03/2016 20:15
Nitrobenzene	ND	0.25	1	10/03/2016 20:15
2-Nitrophenol	ND	1.3	1	10/03/2016 20:15
4-Nitrophenol	ND	1.3	1	10/03/2016 20:15
N-Nitrosodiphenylamine	ND	0.25	1	10/03/2016 20:15
N-Nitrosodi-n-propylamine	ND	0.25	1	10/03/2016 20:15
Pentachlorophenol	ND	1.3	1	10/03/2016 20:15
Phenanthrene	ND	0.25	1	10/03/2016 20:15
Phenol	ND	0.25	1	10/03/2016 20:15
Pyrene	ND	0.25	1	10/03/2016 20:15
1,2,4-Trichlorobenzene	ND	0.25	1	10/03/2016 20:15
2,4,5-Trichlorophenol	ND	0.25	1	10/03/2016 20:15
2,4,6-Trichlorophenol	ND	0.25	1	10/03/2016 20:15

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	9/29/16	**Analytical Method:**	SW8270C
Project:	SCVWD-CPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 17.5-18.0	**1609C37-011A**	**Soil**	**09/27/2016 12:55**	**GC17**	**127311**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	100	30-130		10/03/2016 20:15
Phenol-d5	90	30-130		10/03/2016 20:15
Nitrobenzene-d5	85	30-130		10/03/2016 20:15
2-Fluorobiphenyl	75	30-130		10/03/2016 20:15
2,4,6-Tribromophenol	32	16-130		10/03/2016 20:15
4-Terphenyl-d14	81	30-130		10/03/2016 20:15

Analyst(s): REB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-CPR	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	1609C37-002C	Soil	09/27/2016 09:25	WC_SKALAR	130116

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 15:59

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	1609C37-002D	Soil	09/27/2016 09:25	WC_SKALAR	130239

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	1609C37-006C	Soil	09/27/2016 12:15	WC_SKALAR	130116

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 16:03

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	1609C37-006D	Soil	09/27/2016 12:15	WC_SKALAR	130239

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-CPR	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 16:07

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WC_SKALAR**	**130239**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/23/2016 00:00

Analyst(s): BM

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-CPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**43.3**	1.00	1	11/22/2016 10:55
Carbonate	ND	1.00	1	11/22/2016 10:55
Bicarbonate	**43.3**	1.00	1	11/22/2016 10:55
Hydroxide	ND	1.00	1	11/22/2016 10:55

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**53.8**	1.00	1	11/22/2016 10:58
Carbonate	ND	1.00	1	11/22/2016 10:58
Bicarbonate	**53.8**	1.00	1	11/22/2016 10:58
Hydroxide	ND	1.00	1	11/22/2016 10:58

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**39.5**	1.00	1	11/22/2016 11:00
Carbonate	ND	1.00	1	11/22/2016 11:00
Bicarbonate	**39.5**	1.00	1	11/22/2016 11:00
Hydroxide	ND	1.00	1	11/22/2016 11:00

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-CPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**47.0**	1.00	1	11/22/2016 11:03
Carbonate	ND	1.00	1	11/22/2016 11:03
Bicarbonate	**47.0**	1.00	1	11/22/2016 11:03
Hydroxide	ND	1.00	1	11/22/2016 11:03

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**33.5**	1.00	1	11/22/2016 11:10
Carbonate	ND	1.00	1	11/22/2016 11:10
Bicarbonate	**33.5**	1.00	1	11/22/2016 11:10
Hydroxide	ND	1.00	1	11/22/2016 11:10

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**Titrino**	**130196**

Analytes	Result	RL	DF	Date Analyzed
Total Alkalinity	**39.7**	1.00	1	11/22/2016 11:12
Carbonate	ND	1.00	1	11/22/2016 11:12
Bicarbonate	**39.7**	1.00	1	11/22/2016 11:12
Hydroxide	ND	1.00	1	11/22/2016 11:12

Analyst(s): HN

Analytical Report

Client: Todd Groundwater
Date Received: 9/27/16 18:30
Date Prepared: 11/28/16
Project: SCVWD-CPR

WorkOrder: 1609C37
Extraction Method: SM4500-Cl G
Analytical Method: SM4500-Cl G
Unit: mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:28

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:31

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:34

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:37

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-CPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:43

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-CPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.74 @ 22.2°C**	1.00	1	11/21/2016 18:45

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.78 @ 22.3°C**	1.00	1	11/21/2016 18:55

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.90 @ 22.3°C**	1.00	1	11/21/2016 19:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.84 @ 22.4°C**	1.00	1	11/21/2016 19:05

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-CPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.83 @ 22.4°C**	1.00	1	11/21/2016 19:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130174**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**9.02 @ 22.3°C**	1.00	1	11/21/2016 19:15

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @35ft	**1609C37-002B**	**Soil**	**09/27/2016 09:25**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9300**	200	1	10/21/2016 16:51
Arsenic	ND	2.0	1	10/21/2016 16:51
Calcium	**4500**	400	1	10/21/2016 16:51
Chromium	**38**	2.0	1	10/21/2016 16:51
Copper	**17**	2.0	1	10/21/2016 16:51
Iron	**21,000**	80	1	10/21/2016 16:51
Lead	**4.8**	2.0	1	10/21/2016 16:51
Magnesium	**11,000**	80	1	10/21/2016 16:51
Manganese	**1400**	20	1	10/21/2016 16:51
Mercury	ND	0.20	1	10/21/2016 16:51
Selenium	ND	2.0	1	10/21/2016 16:51
Uranium	ND	2.0	1	10/21/2016 16:51
Zinc	**39**	20	1	10/21/2016 16:51

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 10ft	**1609C37-006B**	**Soil**	**09/27/2016 12:15**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**7800**	200	1	10/21/2016 16:57
Arsenic	ND	2.0	1	10/21/2016 16:57
Calcium	**1800**	400	1	10/21/2016 16:57
Chromium	**24**	2.0	1	10/21/2016 16:57
Copper	**14**	2.0	1	10/21/2016 16:57
Iron	**17,000**	80	1	10/21/2016 16:57
Lead	**3.8**	2.0	1	10/21/2016 16:57
Magnesium	**6700**	80	1	10/21/2016 16:57
Manganese	**480**	20	1	10/21/2016 16:57
Mercury	ND	0.20	1	10/21/2016 16:57
Selenium	ND	2.0	1	10/21/2016 16:57
Uranium	ND	2.0	1	10/21/2016 16:57
Zinc	**31**	20	1	10/21/2016 16:57

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/4/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 15ft	**1609C37-007B**	**Soil**	**09/27/2016 12:20**	**ICP-MS2**	**128080**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9300**	200	1	10/21/2016 17:22
Arsenic	ND	2.0	1	10/21/2016 17:22
Calcium	**2400**	400	1	10/21/2016 17:22
Chromium	**37**	2.0	1	10/21/2016 17:22
Copper	**16**	2.0	1	10/21/2016 17:22
Iron	**21,000**	80	1	10/21/2016 17:22
Lead	**4.6**	2.0	1	10/21/2016 17:22
Magnesium	**11,000**	80	1	10/21/2016 17:22
Manganese	**480**	20	1	10/21/2016 17:22
Mercury	ND	0.20	1	10/21/2016 17:22
Selenium	ND	2.0	1	10/21/2016 17:22
Uranium	ND	2.0	1	10/21/2016 17:22
Zinc	**39**	20	1	10/21/2016 17:22

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 12:46
Antimony	ND		0.00050	1	11/30/2016 12:46
Arsenic	**0.00098**		0.00050	1	11/30/2016 12:46
Barium	**0.017**		0.0050	1	11/30/2016 12:46
Beryllium	ND		0.00050	1	11/30/2016 12:46
Cadmium	ND		0.00025	1	11/30/2016 12:46
Calcium	**14**	B	0.10	1	11/30/2016 12:46
Chromium	**0.00098**		0.00050	1	11/30/2016 12:46
Cobalt	ND		0.00050	1	11/30/2016 12:46
Copper	ND		0.00050	1	11/30/2016 12:46
Iron	ND		0.020	1	11/30/2016 12:46
Lead	ND		0.00050	1	11/30/2016 12:46
Lithium	ND		0.0050	1	11/30/2016 12:46
Magnesium	**6.4**	B	0.020	1	11/30/2016 12:46
Manganese	ND		0.020	1	11/30/2016 12:46
Mercury	ND		0.000050	1	11/30/2016 12:46
Molybdenum	**0.010**		0.00050	1	11/30/2016 12:46
Nickel	ND		0.00050	1	11/30/2016 12:46
Potassium	**2.1**	B	0.020	1	11/30/2016 12:46
Selenium	ND		0.00050	1	11/30/2016 12:46
Silver	ND		0.00050	1	11/30/2016 12:46
Sodium	**23**	B	0.10	1	11/30/2016 12:46
Strontium	**0.12**		0.020	1	11/30/2016 12:46
Thallium	ND		0.00050	1	11/30/2016 12:46
Uranium	ND		0.00050	1	11/30/2016 12:46
Vanadium	**0.0016**		0.00050	1	11/30/2016 12:46
Zinc	ND		0.015	1	11/30/2016 12:46

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:11
Antimony	ND		0.00050	1	11/30/2016 13:11
Arsenic	**0.00098**		0.00050	1	11/30/2016 13:11
Barium	**0.018**		0.0050	1	11/30/2016 13:11
Beryllium	ND		0.00050	1	11/30/2016 13:11
Cadmium	ND		0.00025	1	11/30/2016 13:11
Calcium	**15**	B	0.10	1	11/30/2016 13:11
Chromium	**0.0012**		0.00050	1	11/30/2016 13:11
Cobalt	ND		0.00050	1	11/30/2016 13:11
Copper	ND		0.00050	1	11/30/2016 13:11
Iron	ND		0.020	1	11/30/2016 13:11
Lead	ND		0.00050	1	11/30/2016 13:11
Lithium	**0.0051**		0.0050	1	11/30/2016 13:11
Magnesium	**6.7**	B	0.020	1	11/30/2016 13:11
Manganese	ND		0.020	1	11/30/2016 13:11
Mercury	ND		0.000050	1	11/30/2016 13:11
Molybdenum	**0.011**		0.00050	1	11/30/2016 13:11
Nickel	ND		0.00050	1	11/30/2016 13:11
Potassium	**2.1**	B	0.020	1	11/30/2016 13:11
Selenium	ND		0.00050	1	11/30/2016 13:11
Silver	ND		0.00050	1	11/30/2016 13:11
Sodium	**25**	B	0.10	1	11/30/2016 13:11
Strontium	**0.13**		0.020	1	11/30/2016 13:11
Thallium	ND		0.00050	1	11/30/2016 13:11
Uranium	ND		0.00050	1	11/30/2016 13:11
Vanadium	**0.0017**		0.00050	1	11/30/2016 13:11
Zinc	ND		0.015	1	11/30/2016 13:11

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:17
Antimony	ND		0.00050	1	11/30/2016 13:17
Arsenic	**0.00055**		0.00050	1	11/30/2016 13:17
Barium	**0.024**		0.0050	1	11/30/2016 13:17
Beryllium	ND		0.00050	1	11/30/2016 13:17
Cadmium	ND		0.00025	1	11/30/2016 13:17
Calcium	**13**	B	0.10	1	11/30/2016 13:17
Chromium	**0.0010**		0.00050	1	11/30/2016 13:17
Cobalt	ND		0.00050	1	11/30/2016 13:17
Copper	ND		0.00050	1	11/30/2016 13:17
Iron	ND		0.020	1	11/30/2016 13:17
Lead	ND		0.00050	1	11/30/2016 13:17
Lithium	ND		0.0050	1	11/30/2016 13:17
Magnesium	**5.9**	B	0.020	1	11/30/2016 13:17
Manganese	ND		0.020	1	11/30/2016 13:17
Mercury	ND		0.000050	1	11/30/2016 13:17
Molybdenum	**0.0033**		0.00050	1	11/30/2016 13:17
Nickel	ND		0.00050	1	11/30/2016 13:17
Potassium	**1.6**	B	0.020	1	11/30/2016 13:17
Selenium	ND		0.00050	1	11/30/2016 13:17
Silver	ND		0.00050	1	11/30/2016 13:17
Sodium	**22**	B	0.10	1	11/30/2016 13:17
Strontium	**0.13**		0.020	1	11/30/2016 13:17
Thallium	ND		0.00050	1	11/30/2016 13:17
Uranium	ND		0.00050	1	11/30/2016 13:17
Vanadium	**0.00071**		0.00050	1	11/30/2016 13:17
Zinc	ND		0.015	1	11/30/2016 13:17

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:23
Antimony	ND		0.00050	1	11/30/2016 13:23
Arsenic	ND		0.00050	1	11/30/2016 13:23
Barium	**0.024**		0.0050	1	11/30/2016 13:23
Beryllium	ND		0.00050	1	11/30/2016 13:23
Cadmium	ND		0.00025	1	11/30/2016 13:23
Calcium	**13**	B	0.10	1	11/30/2016 13:23
Chromium	**0.0013**		0.00050	1	11/30/2016 13:23
Cobalt	ND		0.00050	1	11/30/2016 13:23
Copper	ND		0.00050	1	11/30/2016 13:23
Iron	ND		0.020	1	11/30/2016 13:23
Lead	ND		0.00050	1	11/30/2016 13:23
Lithium	ND		0.0050	1	11/30/2016 13:23
Magnesium	**5.9**	B	0.020	1	11/30/2016 13:23
Manganese	ND		0.020	1	11/30/2016 13:23
Mercury	ND		0.000050	1	11/30/2016 13:23
Molybdenum	**0.0035**		0.00050	1	11/30/2016 13:23
Nickel	ND		0.00050	1	11/30/2016 13:23
Potassium	**1.6**	B	0.020	1	11/30/2016 13:23
Selenium	ND		0.00050	1	11/30/2016 13:23
Silver	ND		0.00050	1	11/30/2016 13:23
Sodium	**25**	B	0.10	1	11/30/2016 13:23
Strontium	**0.13**		0.020	1	11/30/2016 13:23
Thallium	ND		0.00050	1	11/30/2016 13:23
Uranium	ND		0.00050	1	11/30/2016 13:23
Vanadium	**0.00077**		0.00050	1	11/30/2016 13:23
Zinc	ND		0.015	1	11/30/2016 13:23

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:29
Antimony	ND		0.00050	1	11/30/2016 13:29
Arsenic	ND		0.00050	1	11/30/2016 13:29
Barium	**0.022**		0.0050	1	11/30/2016 13:29
Beryllium	ND		0.00050	1	11/30/2016 13:29
Cadmium	ND		0.00025	1	11/30/2016 13:29
Calcium	**12**	B	0.10	1	11/30/2016 13:29
Chromium	**0.00097**		0.00050	1	11/30/2016 13:29
Cobalt	ND		0.00050	1	11/30/2016 13:29
Copper	ND		0.00050	1	11/30/2016 13:29
Iron	ND		0.020	1	11/30/2016 13:29
Lead	ND		0.00050	1	11/30/2016 13:29
Lithium	ND		0.0050	1	11/30/2016 13:29
Magnesium	**5.6**	B	0.020	1	11/30/2016 13:29
Manganese	ND		0.020	1	11/30/2016 13:29
Mercury	ND		0.000050	1	11/30/2016 13:29
Molybdenum	**0.0024**		0.00050	1	11/30/2016 13:29
Nickel	ND		0.00050	1	11/30/2016 13:29
Potassium	**1.6**	B	0.020	1	11/30/2016 13:29
Selenium	ND		0.00050	1	11/30/2016 13:29
Silver	ND		0.00050	1	11/30/2016 13:29
Sodium	**22**	B	0.10	1	11/30/2016 13:29
Strontium	**0.12**		0.020	1	11/30/2016 13:29
Thallium	ND		0.00050	1	11/30/2016 13:29
Uranium	ND		0.00050	1	11/30/2016 13:29
Vanadium	**0.00075**		0.00050	1	11/30/2016 13:29
Zinc	ND		0.015	1	11/30/2016 13:29

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-CPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:35
Antimony	ND		0.00050	1	11/30/2016 13:35
Arsenic	**0.00059**		0.00050	1	11/30/2016 13:35
Barium	**0.022**		0.0050	1	11/30/2016 13:35
Beryllium	ND		0.00050	1	11/30/2016 13:35
Cadmium	ND		0.00025	1	11/30/2016 13:35
Calcium	**12**	B	0.10	1	11/30/2016 13:35
Chromium	**0.0011**		0.00050	1	11/30/2016 13:35
Cobalt	ND		0.00050	1	11/30/2016 13:35
Copper	ND		0.00050	1	11/30/2016 13:35
Iron	ND		0.020	1	11/30/2016 13:35
Lead	ND		0.00050	1	11/30/2016 13:35
Lithium	ND		0.0050	1	11/30/2016 13:35
Magnesium	**5.7**	B	0.020	1	11/30/2016 13:35
Manganese	ND		0.020	1	11/30/2016 13:35
Mercury	ND		0.000050	1	11/30/2016 13:35
Molybdenum	**0.0027**		0.00050	1	11/30/2016 13:35
Nickel	ND		0.00050	1	11/30/2016 13:35
Potassium	**1.7**	B	0.020	1	11/30/2016 13:35
Selenium	ND		0.00050	1	11/30/2016 13:35
Silver	ND		0.00050	1	11/30/2016 13:35
Sodium	**25**	B	0.10	1	11/30/2016 13:35
Strontium	**0.12**		0.020	1	11/30/2016 13:35
Thallium	ND		0.00050	1	11/30/2016 13:35
Uranium	ND		0.00050	1	11/30/2016 13:35
Vanadium	**0.00086**		0.00050	1	11/30/2016 13:35
Zinc	ND		0.015	1	11/30/2016 13:35

Analyst(s): MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-CPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**291 @ 22.0°C**	±10	1	11/23/2016 16:09

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**298 @ 21.5°C**	±10	1	11/23/2016 16:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**302 @ 21.5°C**	±10	1	11/23/2016 16:18

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**302 @ 21.8°C**	±10	1	11/23/2016 16:21

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-CPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**299 @ 22.2°C**	±10	1	11/23/2016 16:24

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**300 @ 21.9°C**	±10	1	11/23/2016 16:27

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-CPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.09**	±0.05	1	11/21/2016 15:38

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.17**	±0.05	1	11/21/2016 15:44

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.97**	±0.05	1	11/21/2016 15:47

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.01**	±0.05	1	11/21/2016 15:50

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-CPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.82**	±0.05	1	11/21/2016 15:53

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130138**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.96**	±0.05	1	11/21/2016 15:56

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-CPR	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 15:58

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:01

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:04

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:06

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-CPR	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:10

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:12

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-CPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**235**	10.0	1	11/22/2016 18:55
Total Dissolved Solids (mg/L)	**115**	4.80	1	11/22/2016 18:55

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**253**	10.0	1	11/22/2016 19:05
Total Dissolved Solids (mg/L)	**124**	4.80	1	11/22/2016 19:05

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**222**	10.0	1	11/22/2016 19:10
Total Dissolved Solids (mg/L)	**109**	4.80	1	11/22/2016 19:10

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-CPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**235**	10.0	1	11/22/2016 19:15
Total Dissolved Solids (mg/L)	**115**	4.80	1	11/22/2016 19:15

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**218**	10.0	1	11/22/2016 19:20
Total Dissolved Solids (mg/L)	**107**	4.80	1	11/22/2016 19:20

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130484**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**229**	10.0	1	11/22/2016 19:25
Total Dissolved Solids (mg/L)	**112**	4.80	1	11/22/2016 19:25

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	9/28/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWD-CPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @30ft	**1609C37-001A**	**Soil**	**09/27/2016 08:45**	**WetChem**	**127294**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**137**	25.0	1	09/28/2016 17:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @35ft	**1609C37-002A**	**Soil**	**09/27/2016 09:25**	**WetChem**	**127294**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**122**	25.0	1	09/28/2016 17:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 @ft5.0	**1609C37-005A**	**Soil**	**09/27/2016 12:00**	**WetChem**	**127295**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**117**	25.0	1	09/28/2016 17:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 10ft	**1609C37-006A**	**Soil**	**09/27/2016 12:15**	**WetChem**	**127295**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**69.7**	25.0	1	09/28/2016 17:20

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	9/28/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWD-CPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 15ft	**1609C37-007A**	**Soil**	**09/27/2016 12:20**	**WetChem**	**127295**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**49.7**	25.0	1	09/28/2016 17:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 20ft	**1609C37-008A**	**Soil**	**09/27/2016 12:30**	**WetChem**	**127295**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**131**	25.0	1	09/28/2016 17:30

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/13/16	**Analytical Method:**	SW6010B
Project:	SCVWD-CPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-2 @35ft	**1609C37-002B**	**Soil**	**09/27/2016 09:25**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2400**	15	1	11/01/2016 19:47

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 10ft	**1609C37-006B**	**Soil**	**09/27/2016 12:15**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2100**	15	1	11/01/2016 19:50

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SONIC-3 15ft	**1609C37-007B**	**Soil**	**09/27/2016 12:20**	**ICP-JY**	**128926**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2200**	15	1	11/01/2016 19:54

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-CPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.9**	B	0.050	1	11/30/2016 18:08

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.3**	B	0.050	1	11/30/2016 18:12

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**3.3**	B	0.050	1	11/30/2016 18:16

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**3.6**	B	0.050	1	11/30/2016 18:20

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-CPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.1**	B	0.050	1	11/30/2016 18:23

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.5**	B	0.050	1	11/30/2016 18:27

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-CPR	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:05

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:15

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-CPR	**Unit:**	mg/L

Sulfide - S (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	1609C37-007C	Soil	09/27/2016 12:20	SPECTROPHOTOMETER	130710

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	1609C37-007D	Soil	09/27/2016 12:20	SPECTROPHOTOMETER	130710

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	12/02/2016 20:25

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-CPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WC_SKALAR**	**130130**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/22/2016 12:09

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:31

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WC_SKALAR**	**130130**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/22/2016 12:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:51

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-CPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WC_SKALAR**	**130130**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/22/2016 12:15

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WC_SKALAR**	**130203**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	ND	0.30	1	11/23/2016 16:55

Analyst(s): BM

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-CPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.271**	0.100	1	11/23/2016 18:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.158**	0.100	1	11/23/2016 18:45

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.169**	0.100	1	11/23/2016 18:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.215**	0.100	1	11/23/2016 18:55

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-CPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.308**	0.100	1	11/23/2016 19:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WetChem**	**130328**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.345**	0.100	1	11/23/2016 19:05

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-CPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 12:55

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 23:30

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 13:07

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 23:42

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-CPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 13:19

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WC_CNS**	**130137**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/21/2016 23:54

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-CPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 1	**1609C37-002C**	**Soil**	**09/27/2016 09:25**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**38**	2.6	1	11/23/2016 22:33

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-2 35ft Chem Dose 2	**1609C37-002D**	**Soil**	**09/27/2016 09:25**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**48**	2.6	1	11/23/2016 13:11

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 1	**1609C37-006C**	**Soil**	**09/27/2016 12:15**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 23:02

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 10ft Chem Dose 2	**1609C37-006D**	**Soil**	**09/27/2016 12:15**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**43**	2.6	1	11/23/2016 13:18

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Received:	9/27/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-CPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 1	**1609C37-007C**	**Soil**	**09/27/2016 12:20**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**30**	2.6	1	11/23/2016 23:09

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-3 15ft Chem Dose 2	**1609C37-007D**	**Soil**	**09/27/2016 12:20**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**36**	2.6	1	11/23/2016 13:35

Analyst(s): BAS

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	12/1/16	**BatchID:**	130600
Date Analyzed:	11/25/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130600

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0248	0.00020	0.025	-	99	90-110

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/27/16	**BatchID:**	127190
Date Analyzed:	9/28/16	**Extraction Method:**	E300.0
Instrument:	IC3	**Analytical Method:**	E300.0
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-127190

QC Summary Report for E300.0

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Nitrate as N	ND	10	-	-	-
Nitrate as NO_3^-	ND	45	-	-	-
Surrogate Recovery					
Formate	9.75		10	97	80-120

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Nitrate as N	96.2	96.1	100	96	96	80-120	0	20
Nitrate as NO_3^-	426	426	440	97	97	80-120	0	20
Surrogate Recovery								
Formate	9.47	9.60	10	95	96	80-120	1.29	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16 - 12/1/16	**BatchID:**	130574
Date Analyzed:	11/21/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130574

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.980	0.10	1	-	98	85-115
Chloride	ND	0.984	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.989	0.10	1	-	99	85-115
Nitrate as $NO3^-$	ND	4.38	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.01	0.10	1	-	101	85-115
Nitrite as $NO2^-$	ND	3.30	0.33	3.3	-	100	85-115
Sulfate	ND	0.990	0.10	1	-	99	85-115
Surrogate Recovery							
Formate	0.106	0.104		0.10	106	104	85-115

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/26/16 - 11/27/16	**BatchID:**	130543
Date Analyzed:	11/26/16 - 11/27/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130543

QC Summary Report for E314.0 (Perchlorate)

Analyte	MB Result	RL			
Perchlorate	ND	4.0	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Perchlorate	9.62	9.93	10	96	99	85-115	3.17	15

Quality Control Report

Client: Todd Groundwater
Date Prepared: 9/28/16
Date Analyzed: 10/3/16
Instrument: IC1
Matrix: Soil
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 127264
Extraction Method: E314.0 modified
Analytical Method: E314.0m
Unit: mg/kg
Sample ID: MB/LCS-127264
1609C36-004AMS/MSD

QC Summary Report for E314.0m (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	1.05	0.40	1	-	105	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	1.04	1.06	1	ND	104	106	70-130	1.99	20

CDPH ELAP 1644

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/27/16	**BatchID:**	127237
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127237 1609C24-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0376	0.0050	0.050	-	75	53-116
Benzene	ND	0.0426	0.0050	0.050	-	85	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.157	0.050	0.20	-	78	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0437	0.0050	0.050	-	87	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0421	0.0040	0.050	-	84	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0399	0.0040	0.050	-	80	58-135
1,1-Dichloroethene	ND	0.0408	0.0050	0.050	-	82	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/27/16	**BatchID:**	127237
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127237 1609C24-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0397	0.0050	0.050	-	79	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0396	0.0050	0.050	-	79	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0388	0.0050	0.050	-	78	58-122
Methylene chloride	0.00981	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0466	0.0050	0.050	-	93	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0442	0.0050	0.050	-	88	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/27/16	**BatchID:**	127237
Date Analyzed:	9/28/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127237 1609C24-003AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.123	0.125		0.12	99	100	70-130
Toluene-d8	0.134	0.132		0.12	108	106	70-130
4-BFB	0.0123	0.0128		0.012	98	102	70-130
Benzene-d6	0.0948	0.0909		0.10	95	91	60-140
Ethylbenzene-d10	0.121	0.108		0.10	121	108	60-140
1,2-DCB-d4	0.0864	0.0805		0.10	86	81	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0301	0.0302	0.050	ND	60	60	53-116	0	20
Benzene	0.0344	0.0349	0.050	ND	69	70	63-137	1.50	20
t-Butyl alcohol (TBA)	0.110	0.111	0.20	ND	55	55	41-135	0	20
Chlorobenzene	0.0336	0.0341	0.050	ND	67,F1	68,F1	77-121	1.57	20
1,2-Dibromoethane (EDB)	0.0316	0.0322	0.050	ND	63,F1	64,F1	67-119	1.86	20
1,2-Dichloroethane (1,2-DCA)	0.0312	0.0314	0.050	ND	62	63	58-135	0.851	20
1,1-Dichloroethene	0.0325	0.0329	0.050	ND	65	66	42-145	1.24	20
Diisopropyl ether (DIPE)	0.0324	0.0327	0.050	ND	65	65	52-129	0	20
Ethyl tert-butyl ether (ETBE)	0.0316	0.0318	0.050	ND	63	64	53-125	0.924	20
Methyl-t-butyl ether (MTBE)	0.0305	0.0308	0.050	ND	61	62	58-122	0.874	20
Toluene	0.0357	0.0369	0.050	ND	71,F1	74,F1	76-130	3.29	20
Trichloroethene	0.0340	0.0350	0.050	ND	68,F1	70,F1	72-132	3.04	20
Surrogate Recovery									
Dibromofluoromethane	0.126	0.124	0.12		101	100	70-130	1.24	20
Toluene-d8	0.132	0.133	0.12		105	106	70-130	0.705	20
4-BFB	0.0125	0.0130	0.012		100	104	70-130	3.73	20
Benzene-d6	0.0712	0.0734	0.10		71	73	60-140	2.99	20
Ethylbenzene-d10	0.0771	0.0774	0.10		77	77	60-140	0	20
1,2-DCB-d4	0.0619	0.0634	0.10		62	63	60-140	2.28	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/28/16	**BatchID:**	127311
Date Analyzed:	9/29/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.98	0.25	5	-	100	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	5.32	0.25	5	-	106	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	5.26	0.25	5	-	105	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.42	0.25	5	-	88	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/28/16	**BatchID:**	127311
Date Analyzed:	9/29/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	5.12	0.25	5	-	102	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.33	1.3	5	-	87	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.84	0.25	5	-	97	47-108
Pentachlorophenol	ND	5.94	1.3	5	-	119	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.69	0.25	5	-	94	49-107
Pyrene	ND	5.70	0.25	5	-	114	55-124
1,2,4-Trichlorobenzene	ND	5.35	0.25	5	-	107	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

Quality Control Report

Client: Todd Groundwater
Date Prepared: 9/28/16
Date Analyzed: 9/29/16
Instrument: GC17
Matrix: Soil
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 127311
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.53	5.47		5	111	109	47-125
Phenol-d5	4.84	4.93		5	97	99	45-117
Nitrobenzene-d5	5.04	5.38		5	101	108	39-121
2-Fluorobiphenyl	4.53	4.94		5	91	99	35-120
2,4,6-Tribromophenol	4.53	4.85		5	91	97	32-111
4-Terphenyl-d14	4.35	4.83		5	87	97	32-128

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/28/16	**BatchID:**	127311
Date Analyzed:	9/29/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.98	0.25	5	-	100	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	5.32	0.25	5	-	106	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	5.26	0.25	5	-	105	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.42	0.25	5	-	88	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/28/16	**BatchID:**	127311
Date Analyzed:	9/29/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	5.12	0.25	5	-	102	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.33	1.3	5	-	87	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.84	0.25	5	-	97	47-108
Pentachlorophenol	ND	5.94	1.3	5	-	119	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.69	0.25	5	-	94	49-107
Pyrene	ND	5.70	0.25	5	-	114	55-124
1,2,4-Trichlorobenzene	ND	5.35	0.25	5	-	107	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	9/28/16	**BatchID:**	127311
Date Analyzed:	9/29/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-127311

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.53	5.47		5	111	109	47-125
Phenol-d5	4.84	4.93		5	97	99	45-117
Nitrobenzene-d5	5.04	5.38		5	101	108	39-121
2-Fluorobiphenyl	4.53	4.94		5	91	99	35-120
2,4,6-Tribromophenol	4.53	4.85		5	91	97	32-111
4-Terphenyl-d14	4.35	4.83		5	87	97	32-128

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16	**BatchID:**	130116
Date Analyzed:	11/21/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130116 1611655-001DMS/MSD

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.30	0.10	4	-	107	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	3.81	4.08	4	ND	95	102	88-113	7.01	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130239
Date Analyzed:	11/22/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130239

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	3.81	0.10	4	-	95	88-113

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130196
Date Analyzed:	11/22/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	SCVWD-CPR		

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1611A14-003F	44.0	1	43.6	1	0.91	<20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/28/16	**BatchID:**	130424
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130424

QC Summary Report for SM4500-Cl G

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.04	0.040	1	-	104	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16	**BatchID:**	130174
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate	**Unit:**	mg DO/L @ °C
Project:	SCVWD-CPR		

QC Summary Report for Dissolved Oxygen

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609C37-002C	8.74 @ 22.2°C	1	8.75 @ 22.2°C	1	0.01	0.05

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	10/4/16	**BatchID:**	128080
Date Analyzed:	10/21/16	**Extraction Method:**	TM-7
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB-128080

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	-	200	-	-	-	-
Arsenic	ND	-	2.0	-	-	-	-
Calcium	ND	-	400	-	-	-	-
Chromium	ND	-	2.0	-	-	-	-
Copper	ND	-	2.0	-	-	-	-
Iron	ND	-	80	-	-	-	-
Lead	ND	-	2.0	-	-	-	-
Magnesium	ND	-	80	-	-	-	-
Manganese	ND	-	20	-	-	-	-
Mercury	ND	-	0.050	-	-	-	-
Selenium	ND	-	0.50	-	-	-	-
Uranium	ND	-	2.0	-	-	-	-
Zinc	ND	-	20	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130211
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130211

QC Summary Report for Metals (SPLP)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	18.4	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	0.0444	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	1.04	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	21.3	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.0050	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130211
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130211

QC Summary Report for Metals (SPLP)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.528	0.525	0.50	106	105	75-125	0.664	20
Antimony	0.0534	0.0541	0.050	107	108	75-125	1.40	20
Arsenic	0.0513	0.0520	0.050	103	104	75-125	1.49	20
Barium	0.514	0.516	0.50	103	103	75-125	0	20
Beryllium	0.0516	0.0517	0.050	103	103	75-125	0	20
Cadmium	0.0510	0.0518	0.050	102	104	75-125	1.54	20
Calcium	23.6	23.9	5	472, F2	478, F2	75-125	1.31	20
Chromium	0.0518	0.0516	0.050	104	103	75-125	0.309	20
Cobalt	0.0466	0.0513	0.050	93	103	75-125	9.70	20
Copper	0.0519	0.0505	0.050	104	101	75-125	2.79	20
Iron	5.08	5.10	5	102	102	75-125	0	20
Lead	0.0512	0.0520	0.050	102	104	75-125	1.63	20
Lithium	0.0500	0.0503	0.050	100	101	75-125	0.599	20
Magnesium	5.32	5.31	5	106	106	75-125	0	20
Manganese	5.10	5.15	5	102	103	75-125	0.936	20
Mercury	0.00137	0.00138	0.0012	110	110	75-125	0	20
Molybdenum	0.0531	0.0537	0.050	106	107	75-125	1.10	20
Nickel	0.0502	0.0507	0.050	100	101	75-125	0.991	20
Potassium	6.21	6.25	5	124	125	75-125	0.530	20
Selenium	0.0514	0.0523	0.050	103	105	75-125	1.79	20
Silver	0.0514	0.0524	0.050	103	105	75-125	1.93	20
Sodium	26.4	26.8	5	529, F2	537, F2	75-125	1.54	20
Strontium	0.513	0.520	0.50	103	104	75-125	1.45	20
Thallium	0.0512	0.0511	0.050	102	102	75-125	0	20
Uranium	0.0523	0.0524	0.050	105	105	75-125	0	20
Vanadium	0.0520	0.0513	0.050	104	103	75-125	1.37	20
Zinc	0.503	0.511	0.50	101	102	75-125	1.50	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130300
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130300

QC Summary Report for Metals (SPLP)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	18.3	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	0.0382	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	1.05	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	24.6	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.0050	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130300
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130300

QC Summary Report for Metals (SPLP)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.520	0.513	0.50	104	103	75-125	1.35	20
Antimony	0.0539	0.0524	0.050	108	105	75-125	2.84	20
Arsenic	0.0520	0.0518	0.050	104	104	75-125	0	20
Barium	0.510	0.500	0.50	102	100	75-125	1.96	20
Beryllium	0.0516	0.0499	0.050	103	100	75-125	3.23	20
Cadmium	0.0511	0.0508	0.050	102	102	75-125	0	20
Calcium	23.8	23.1	5	476, F2	462, F2	75-125	2.98	20
Chromium	0.0513	0.0510	0.050	103	102	75-125	0.723	20
Cobalt	0.0481	0.0502	0.050	96	100	75-125	4.33	20
Copper	0.0499	0.0500	0.050	100	100	75-125	0	20
Iron	5.00	4.98	5	100	100	75-125	0	20
Lead	0.0512	0.0509	0.050	102	102	75-125	0	20
Lithium	0.0497	0.0485	0.050	99	97	75-125	2.49	20
Magnesium	5.28	5.19	5	106	104	75-125	1.85	20
Manganese	5.12	5.03	5	102	101	75-125	1.75	20
Mercury	0.00142	0.00136	0.0012	114	109	75-125	4.09	20
Molybdenum	0.0537	0.0525	0.050	107	105	75-125	2.20	20
Nickel	0.0500	0.0499	0.050	100	100	75-125	0	20
Potassium	6.24	6.15	5	125	123	75-125	1.52	20
Selenium	0.0518	0.0511	0.050	104	102	75-125	1.44	20
Silver	0.0516	0.0510	0.050	103	102	75-125	1.07	20
Sodium	30.3	29.3	5	605, F2	586, F2	75-125	3.32	20
Strontium	0.510	0.506	0.50	102	101	75-125	0.709	20
Thallium	0.0504	0.0509	0.050	101	102	75-125	0.928	20
Uranium	0.0512	0.0509	0.050	102	102	75-125	0	20
Vanadium	0.0514	0.0507	0.050	103	101	75-125	1.53	20
Zinc	0.500	0.499	0.50	100	100	75-125	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130321
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	SCVWD-CPR		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	ORP	mV vs. NHE	291 @ 22.0°C	1	285 @ 22.0°C	1	1.93	<10

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/21/16
Date Analyzed: 11/21/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 130138
Extraction Method: SW9040
Analytical Method: SW9040

QC Summary Report for pH (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609C37-002C	pH	pH units @ 25°C	8.09	1	8.07	1	0.02	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130206
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130206

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Phosphorous	ND	1.00	0.050	1	-	100	80-120

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130296
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130296

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Phosphorous	ND	0.974	0.050	1	-	97	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130484
Date Analyzed:	11/22/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate		
Project:	SCVWD-CPR		

QC Summary Report for SM2510B (SC, Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	Specific Conductivity	µmhos/cm @ 25°C	235	1	235	1	0	<2

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 9/28/16
Date Analyzed: 9/28/16
Instrument: WetChem
Matrix: Soil
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 127294
Extraction Method: SM2510Bm-1997
Analytical Method: SM2510Bm-1997

QC Summary Report for SM2510B (SC)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C36-004A	Specific Conductivity	µmhos/cm @ 25°C	113	1	113	1	0.177	<5

Client: Todd Groundwater
Date Prepared: 9/28/16
Date Analyzed: 9/28/16
Instrument: WetChem
Matrix: Soil
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 127295
Extraction Method: SM2510Bm-1997
Analytical Method: SM2510Bm-1997

QC Summary Report for SM2510B (SC)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-005A	Specific Conductivity	µmhos/cm @ 25°C	117	1	117	1	0.257	<5

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	10/13/16	**BatchID:**	128926
Date Analyzed:	11/1/16	**Extraction Method:**	TM-7
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-CPR	**Sample ID:**	MB-128926

QC Summary Report for Silicon

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	-	15	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130209
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130209

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.461	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.984	1.01	1	98	101	80-120	2.62	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130298
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS/LCSD-130298

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.992	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.954	0.984	1	95	98	80-120	3.14	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	12/2/16	**BatchID:**	130710
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130710 1609D47-002DMS/MSD

QC Summary Report SM4500 S-2D (Sulfide, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.502	0.050	0.50	-	100	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.456	0.456	0.50	ND	91	91	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16	**BatchID:**	130130
Date Analyzed:	11/22/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130130 1611940-001DMS/MSD

QC Summary Report E351.2 (TKN as N, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	10.9	0.30	12	-	91	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	12.9	12.5	12	1.9	92	88	50-132	3.53	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/22/16	**BatchID:**	130203
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130203

QC Summary Report E351.2 (TKN as N, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	11.4	0.30	12	-	95	90-110

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/23/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWD-CPR

WorkOrder: 1609C37
BatchID: 130328
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report SM2130B (Turbidity, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	0.271	1	0.268	1	1.11	<10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16	**BatchID:**	130136
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130136

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.3	0.70	50	-	101	80-120

(Cont.)

CDPH ELAP 1644

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/21/16	**BatchID:**	130137
Date Analyzed:	11/21/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130137

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.5	0.70	50	-	101	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609C37
Date Prepared:	11/23/16	**BatchID:**	130278
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-CPR	**Sample ID:**	MB/LCS-130278

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	39.5	2.6	36.7	-	108	80-120

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609C37-001	SONIC-2 @30ft	Soil	9/27/2016 08:45	☐		A			A							
1609C37-002	S-2 35ft Chem Dose 1	Soil	9/27/2016 09:25	☐	C		C	C				C	C	C	C	C
1609C37-002	S-2 35ft Chem Dose 2	Soil	9/27/2016 09:25	☐	D		D	D				D	D	D	D	D
1609C37-002	SONIC-2 @35ft	Soil	9/27/2016 09:25	☐		A			A							
1609C37-003	SONIC-2 27.5-28.0	Soil	9/27/2016 08:45	☐						A	A					
1609C37-004	SONIC-2 33.0-33.5	Soil	9/27/2016 10:00	☐						A	A					
1609C37-005	SONIC-3 @ft5.0	Soil	9/27/2016 12:00	☐		A			A							
1609C37-006	S-3 10ft Chem Dose 1	Soil	9/27/2016 12:15	☐	C		C	C				C	C	C	C	C
1609C37-006	S-3 10ft Chem Dose 2	Soil	9/27/2016 12:15	☐	D		D	D				D	D	D	D	D
1609C37-006	SONIC-3 10ft	Soil	9/27/2016 12:15	☐		A			A							
1609C37-007	S-3 15ft Chem Dose 1	Soil	9/27/2016 12:20	☐	C		C	C				C	C	C	C	C
1609C37-007	S-3 15ft Chem Dose 2	Soil	9/27/2016 12:20	☐	D		D	D				D	D	D	D	D
1609C37-007	SONIC-3 15ft	Soil	9/27/2016 12:20	☐		A			A							
1609C37-008	SONIC-3 20ft	Soil	9/27/2016 12:30	☐		A			A							
1609C37-009	SONIC-3 7.0-7.5	Soil	9/27/2016 12:00	☐						A	A					

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 2

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609C37-010	SONIC-3 14.0-14.5	Soil	9/27/2016 12:15	☐						A	A					
1609C37-011	SONIC-3 17.5-18.0	Soil	9/27/2016 12:55	☐						A	A					

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 13	14	15	16	17	18	19	20	21	22	23	24
1609C37-001	SONIC-2 @30ft	Soil	9/27/2016 08:45	☐								A				
1609C37-002	S-2 35ft Chem Dose 1	Soil	9/27/2016 09:25	☐	C		C	C	C	C	C			C	C	C
1609C37-002	S-2 35ft Chem Dose 2	Soil	9/27/2016 09:25	☐	D		D	D	D	D	D			D	D	D
1609C37-002	SONIC-2 @35ft	Soil	9/27/2016 09:25	☐		B						A	B			
1609C37-003	SONIC-2 27.5-28.0	Soil	9/27/2016 08:45	☐												
1609C37-004	SONIC-2 33.0-33.5	Soil	9/27/2016 10:00	☐												
1609C37-005	SONIC-3 @ft5.0	Soil	9/27/2016 12:00	☐								A				
1609C37-006	S-3 10ft Chem Dose 1	Soil	9/27/2016 12:15	☐	C		C	C	C	C	C			C	C	C
1609C37-006	S-3 10ft Chem Dose 2	Soil	9/27/2016 12:15	☐	D		D	D	D	D	D			D	D	D
1609C37-006	SONIC-3 10ft	Soil	9/27/2016 12:15	☐		B						A	B			
1609C37-007	S-3 15ft Chem Dose 1	Soil	9/27/2016 12:20	☐	C		C	C	C	C	C			C	C	C
1609C37-007	S-3 15ft Chem Dose 2	Soil	9/27/2016 12:20	☐	D		D	D	D	D	D			D	D	D
1609C37-007	SONIC-3 15ft	Soil	9/27/2016 12:20	☐		B						A	B			
1609C37-008	SONIC-3 20ft	Soil	9/27/2016 12:30	☐								A				
1609C37-009	SONIC-3 7.0-7.5	Soil	9/27/2016 12:00	☐												

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 2

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☑ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609C37-010	SONIC-3 14.0-14.5	Soil	9/27/2016 12:15	☐												
1609C37-011	SONIC-3 17.5-18.0	Soil	9/27/2016 12:55	☐												

Test Legend:

13	DO_Leachate	14	METALSMS_HH_S	15	METALSMS_SPLP_S	16	ORP_Leachate
17	P_SPLP_Leachate	18	PH_Leachate	19	SC_Leachate	20	SC_S
21	SI_HH_S	22	SI_SPLP_LEACHATE	23	SULFIDE_Leachate	24	TKN_Leachate

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609C37-001	SONIC-2 @30ft	Soil	9/27/2016 08:45	☐												
1609C37-002	S-2 35ft Chem Dose 1	Soil	9/27/2016 09:25	☐	C											
1609C37-002	S-2 35ft Chem Dose 2	Soil	9/27/2016 09:25	☐	D											
1609C37-002	SONIC-2 @35ft	Soil	9/27/2016 09:25	☐												
1609C37-003	SONIC-2 27.5-28.0	Soil	9/27/2016 08:45	☐												
1609C37-004	SONIC-2 33.0-33.5	Soil	9/27/2016 10:00	☐												
1609C37-005	SONIC-3 @ft5.0	Soil	9/27/2016 12:00	☐												
1609C37-006	S-3 10ft Chem Dose 1	Soil	9/27/2016 12:15	☐	C											
1609C37-006	S-3 10ft Chem Dose 2	Soil	9/27/2016 12:15	☐	D											
1609C37-006	SONIC-3 10ft	Soil	9/27/2016 12:15	☐												
1609C37-007	S-3 15ft Chem Dose 1	Soil	9/27/2016 12:20	☐	C											
1609C37-007	S-3 15ft Chem Dose 2	Soil	9/27/2016 12:20	☐	D											
1609C37-007	SONIC-3 15ft	Soil	9/27/2016 12:20	☐												
1609C37-008	SONIC-3 20ft	Soil	9/27/2016 12:30	☐												
1609C37-009	SONIC-3 7.0-7.5	Soil	9/27/2016 12:00	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609C37 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-CPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/27/2016**
Date Logged: **09/28/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609C37-010	SONIC-3 14.0-14.5	Soil	9/27/2016 12:15	☐												
1609C37-011	SONIC-3 17.5-18.0	Soil	9/27/2016 12:55	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 005A, 006A, 007A, 008A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 002C, 002D, 006C, 006D, 007C, 007D contain testgroup Todd_Diss_study.

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-CPR
Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

Work Order: 1609C37
QC Level: LEVEL 2
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C37-001A	SONIC-2 @30ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 8:45	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3^->			☐		5 days		☐	
1609C37-002A	SONIC-2 @35ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 9:25	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3^->			☐		5 days		☐	
1609C37-002B	SONIC-2 @35ft	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/27/2016 9:25	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609C37-002C	S-2 35ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 9:25	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609C37-002D	S-2 35ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 9:25	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-CPR
Work Order: 1609C37
Client Contact: Bill Motzer
QC Level: LEVEL 2
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extraction for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C37-002D	S-2 35ft Chem Dose 2	Soil	E415.3 (IC as CO2)	1	Various	☐	9/27/2016 9:25	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609C37-003A	SONIC-2 27.5-28.0	Soil	SW8270C (SVOCs)	1	16OZ GJ	☐	9/27/2016 8:45	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609C37-004A	SONIC-2 33.0-33.5	Soil	SW8270C (SVOCs)	1	16OZ GJ	☐	9/27/2016 10:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609C37-005A	SONIC-3 @ft5.0	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 12:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$ >			☐		5 days		☐	
1609C37-006A	SONIC-3 10ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 12:15	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$ >			☐		5 days		☐	
1609C37-006B	SONIC-3 10ft	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/27/2016 12:15	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-CPR
Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

Work Order: 1609C37
QC Level: LEVEL 2
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C37-006C	S-3 10ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 12:15	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
1609C37-006D	S-3 10ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 12:15	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609C37-007A	SONIC-3 15ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 12:20	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO_3^->			☐		5 days		☐	
1609C37-007B	SONIC-3 15ft	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	1	16OZ GJ	☐	9/27/2016 12:20	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609C37-007C	S-3 15ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 12:20	5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-CPR
Work Order: 1609C37
Client Contact: Bill Motzer
QC Level: LEVEL 2
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extraction for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C37-007C	S-3 15ft Chem Dose 1	Soil	SM2510B (Specific Conductivity)	1	Various	☐	9/27/2016 12:20	5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609C37-007D	S-3 15ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	1	Various	☐	9/27/2016 12:20	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609C37-008A	SONIC-3 20ft	Soil	E314.0 (Perchlorate)	1	16OZ GJ	☐	9/27/2016 12:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3⁻>			☐		5 days		☐	
1609C37-009A	SONIC-3 7.0-7.5	Soil	SW8270C (SVOCs)	1	16OZ GJ	☐	9/27/2016 12:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609C37-010A	SONIC-3 14.0-14.5	Soil	SW8270C (SVOCs)	1	16OZ GJ	☐	9/27/2016 12:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609C37-011A	SONIC-3 17.5-18.0	Soil	SW8270C (SVOCs)	1	16OZ GJ	☐	9/27/2016 12:55	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWD-CPR

Comments: HH extraction for Metals and CR6 added 10/11/16 STAT

Work Order: 1609C37
QC Level: LEVEL 2
Date Logged: 9/28/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609C37-012A	SONIC-3 @5ft DUP	Soil		1	16OZ GJ	☐	9/27/2016			☑	
1609C37-013A	SONIC-3 @10ft DUP	Soil		1	16OZ GJ	☐	9/27/2016 12:25			☑	
1609C37-014A	SONIC-3 @15ft DUP	Soil		1	16OZ GJ	☐	9/27/2016 12:40			☑	
1609C37-015A	SONIC-3 @20ft DUP	Soil		1	16OZ GJ	☐	9/27/2016			☑	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1609C37

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD		Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510-747-6920
Project Name/#: SCVWD-IPR
Project Location: Ford Road Ponds PO #
Sampler Signature:

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	WHE extraction *	ClO4, NO3 *	SPLP Leachate: * Title 22 metals, etc	VOCs, SVOCs *
SONIC-2 @ 30 Ft	09-27-16	0845	G	Soil	None	✓	✓	✓	
SONIC-2 @ 35 Ft		0925	G	Soil	None	✓	✓	✓	
SONIC-2 27.5-28.0		0845	BT	Soil	NONE				✓
SONIC-2 33.0-33.5		1000	BT	Soil	None				✓
SONIC-3 @ ~~10~~ Ft 5.0	09-27-16	1200	G	Soil	None	✓	✓	✓	
SONIC-3 10 Ft	↓	1215	G	Soil	None	✓	✓	✓	
SONIC-3 15 Ft		1220	G	Soil	None	✓	✓	✓	
SONIC 3 20 Ft	↓	1330	G	Soil	None	✓	✓	✓	
~~SONIC-3~~ SONIC-3 7.0-7.5	↓	1200	BT	Soil	NONE				✓
SONIC-3 14.0-14.5 *	↓	1215	BT	Soil	NONE				✓

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
				9/27	1350
	9/27	1830		9/27/16	1830

Comments / Instructions

* See instructions sent to the lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

* Labled 17.0-17.5 @ Time 12:20

Temp 2.1 °C Initials

*DUPs Rec'd For Sonic3 @ 5Ft, 10Ft 15Ft & 20Ft Added to Page 2.

Page 1 of 2

MAI Work Order # ____________

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William F. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510-747-6920
Project Name/#: SCVWD-IPR
Project Location: Ford Road Ponds PO #
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	VOCs / SVOCs *																		
SONIC-3 17.5-18.0	09/27/16	1255	BS	Soil	none	✓																		
Sonic-3 @ 5ft DUP	9/27	1200	G	S																				
Sonic-3 @ 10ft DUP	9/27	1225	G	S																				
Sonic-3 @ 15ft DUP	9/27	1240	G	S																				
Sonic-3 @ 20ft DUP	9/27	—	G	S																				

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
				9/27	1350
	9/27	1830		9/27/16	1830

Comments / Instructions
* see instructions sent to Fas

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ________ °C Initials ________

Page 2 of 2

Sample Receipt Checklist

Client Name: **Todd Groundwater**
Project Name: **SCVWD-CPR**

WorkOrder №: **1609C37** Matrix: Soil
Carrier: Benjamin Yslas (MAI Courier)

Date and Time Received: **9/27/2016 18:30**
Date Logged: **9/28/2016**
Received by: Jena Alfaro
Logged by: Jena Alfaro

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☐	No ☑	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 2.1°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

From:	Edwin Lin <ELin@toddgroundwater.com>
Sent:	Tuesday, November 08, 2016 9:38 AM
To:	Griselda Martinez; 'Rosa Venegas'
Cc:	'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject:	RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

Griselda Martinez

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?

STEP 2: Enter amount of each chemical
to be added (expressed as 100% chemical).
Press Ctrl+C to select chemicals for this list.

Calcium chloride	45	mg/L
Caustic soda	5.19	mg/L
Lime (slaked)	0	mg/L
Soda ash	0	mg/L
Sodium hypochlorite	3	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609D47 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: SCVWD-IPR

Project Received: 09/29/2016

Analytical Report reviewed & approved for release on 10/07/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

NELAP ACCREDITED TNI LABORATORY

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client:	Todd Groundwater
Project:	SCVWD-IPR
WorkOrder:	1609D47

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 μm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: SCVWD-IPR
WorkOrder: 1609D47

Analytical Qualifiers

B	analyte detected in the associated Method Blank and in the sample
S	Surrogate spike recovery outside accepted recovery limits
a3	sample diluted due to high organic content.
c2	surrogate recovery outside of the control limits due to matrix interference.

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

Case Narrative

Client: Todd Groundwater
Project: SCVWD-IPR
Work Order: 1609D47
December 09, 2016

Langelier Index by SM2330B Calculations at 23 degrees C:

S-4 17.0 Ft Chem Dose 1; 1609D47-001C
Langelier Index =-1.118783081

S-4 17.0 Ft Chem Dose 2; 1609D47-001D
Langelier Index =-1.016444506

S-4 23.0 Ft Chem Dose 1; 1609D47-002C
Langelier Index =-1.076665815

S-4 23.0 Ft Chem Dose 2; 1609D47-002D
Langelier Index =-0.843358691

S-4 50.0 Ft Chem Dose 1; 1609D47-003C
Langelier Index =-1.153081739

S-4 50.0 Ft Chem Dose 2; 1609D47-003D
Langelier Index =-1.01540822

S-4 65.0 Ft Chem Dose 1; 1609D47-004C
Langelier Index =-1.121427979

S-4 65.0 Ft Chem Dose 2; 1609D47-004D
Langelier Index =-0.941896878

S-4 85.0 Ft Chem Dose 1; 1609D47-005C
Langelier Index =-1.041848403

S-4 85.0 Ft Chem Dose 2; 1609D47-005D
Langelier Index =-0.893885992

S-4 95.0 Ft Chem Dose 1; 1609D47-006C
Langelier Index =-1.108215496

S-4 95.0 Ft Chem Dose 2; 1609D47-006D
Langelier Index =-0.912322078

S-4 110 Ft Chem Dose 1; 1609D47-007C
Langelier Index =-1.005602925

S-4 110 Ft Chem Dose 2; 1609D47-007D
Langelier Index =-0.894012149

S-4 125 Ft Chem Dose 1; 1609D47-008C
Langelier Index =-1.142627215

S-4 125 Ft Chem Dose 2; 1609D47-008D

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater
Project: SCVWD-IPR
Work Order: 1609D47
December 09, 2016

Langelier Index =-0.887284313

S-4 155 Ft Chem Dose 1; 1609D47-009C
Langelier Index =-1.007090166

S-4 155 Ft Chem Dose 2; 1609D47-009D
Langelier Index =-0.855272685

Case Narrative

Client: Todd Groundwater
Project: SCVWD-IPR
Work Order: 1609D47
December 08, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.
3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.
4. Leachate from each vial was filtered thru 0.45 micron filter.
5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1609D47
Project: SCWD-IPR December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	**Chemical dose 1**	**Chemical dose 2**
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**CaCl2 and NaOH**	**CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	**Target Level to Protect Mortar Lined Pipes**	**Measured Value: CaCl2 and NaOH**	**Measured Value: CaCl2 and Na2CO3**
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**IC2**	**130600**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00047**		0.00020	1	11/26/2016 04:04

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**IC2**	**130600**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**		0.00020	1	11/26/2016 04:25

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**IC2**	**130600**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00040**		0.00020	1	11/26/2016 04:46

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**IC2**	**130600**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00040**		0.00020	1	11/26/2016 05:07

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00060**		0.00020	1	11/26/2016 05:29

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00076**		0.00020	1	11/26/2016 05:50

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00034**		0.00020	1	11/26/2016 06:11

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00041**		0.00020	1	11/26/2016 06:33

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00035**		0.00020	1	11/26/2016 07:37

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00041**		0.00020	1	11/26/2016 07:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.0011**		0.00020	1	11/26/2016 08:19

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00083**		0.00020	1	11/26/2016 08:41

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00057**		0.00020	1	11/26/2016 09:02

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.0013**		0.00020	1	11/26/2016 09:23

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00069**		0.00020	1	11/26/2016 09:45

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00081**		0.00020	1	11/26/2016 10:06

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00062**		0.00020	1	11/26/2016 11:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**IC2**	**130601**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00066**		0.00020	1	11/26/2016 11:31

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/29/16	**Analytical Method:**	E300.0
Project:	SCVWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @17.0 Ft	**1609D47-001A**	**Soil**	**09/28/2016 08:00**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 02:47
Nitrate as NO3⁻	ND	45	1	10/01/2016 02:47

Surrogates	REC (%)	Limits	Date Analyzed
Formate	96	80-120	10/01/2016 02:47

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @23.0 Ft	**1609D47-002A**	**Soil**	**09/28/2016 08:20**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 03:26
Nitrate as NO3⁻	ND	45	1	10/01/2016 03:26

Surrogates	REC (%)	Limits	Date Analyzed
Formate	94	80-120	10/01/2016 03:26

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 50.0 Ft	**1609D47-003A**	**Soil**	**09/28/2016 10:00**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 04:05
Nitrate as NO3⁻	ND	45	1	10/01/2016 04:05

Surrogates	REC (%)	Limits	Date Analyzed
Formate	94	80-120	10/01/2016 04:05

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/29/16	**Analytical Method:**	E300.0
Project:	SCVWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @65.0 Ft	**1609D47-004A**	**Soil**	**09/28/2016 10:50**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 04:44
Nitrate as NO3^{-}	ND	45	1	10/01/2016 04:44

Surrogates	REC (%)	Limits	Date Analyzed
Formate	95	80-120	10/01/2016 04:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 85.0 Ft	**1609D47-005A**	**Soil**	**09/28/2016 12:15**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 05:23
Nitrate as NO3^{-}	ND	45	1	10/01/2016 05:23

Surrogates	REC (%)	Limits	Date Analyzed
Formate	95	80-120	10/01/2016 05:23

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 95.0 Ft	**1609D47-006A**	**Soil**	**09/28/2016 12:30**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**10**	10	1	10/01/2016 06:42
Nitrate as NO3^{-}	**46**	45	1	10/01/2016 06:42

Surrogates	REC (%)	Limits	Date Analyzed
Formate	93	80-120	10/01/2016 06:42

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.0
Date Prepared:	9/29/16	**Analytical Method:**	E300.0
Project:	SCVWD-IPR	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 110.0 Ft	**1609D47-007A**	**Soil**	**09/28/2016 13:30**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 07:21
Nitrate as NO3$^-$	ND	45	1	10/01/2016 07:21

Surrogates	REC (%)	Limits	Date Analyzed
Formate	95	80-120	10/01/2016 07:21

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 125 Ft	**1609D47-008A**	**Soil**	**09/28/2016 14:00**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 08:00
Nitrate as NO3$^-$	ND	45	1	10/01/2016 08:00

Surrogates	REC (%)	Limits	Date Analyzed
Formate	95	80-120	10/01/2016 08:00

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 155 Ft	**1609D47-009A**	**Soil**	**09/28/2016 16:00**	**IC3**	**127389**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 08:39
Nitrate as NO3$^-$	ND	45	1	10/01/2016 08:39

Surrogates	REC (%)	Limits	Date Analyzed
Formate	94	80-120	10/01/2016 08:39

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**IC3**	**130574**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/22/2016 21:38
Chloride	**41**		5.0	50	11/25/2016 04:01
Fluoride	ND		0.10	1	11/22/2016 21:38
Nitrate as N	**2.4**		0.10	1	11/22/2016 21:38
Nitrate as $NO3^-$	**11**		0.45	1	11/22/2016 21:38
Nitrite as N	ND		0.10	1	11/22/2016 21:38
Nitrite as $NO2^-$	ND		0.33	1	11/22/2016 21:38
Sulfate	**0.99**		0.10	1	11/22/2016 21:38

Surrogates	REC (%)	Qualifiers	Limits	
	74	S	90-115	11/22/2016 21:38

Analyst(s): AO   Analytical Comments: c2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**IC3**	**130574**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/22/2016 22:17
Chloride	**41**		5.0	50	11/25/2016 04:40
Fluoride	**0.11**		0.10	1	11/22/2016 22:17
Nitrate as N	**2.4**		0.10	1	11/22/2016 22:17
Nitrate as $NO3^-$	**11**		0.45	1	11/22/2016 22:17
Nitrite as N	ND		0.10	1	11/22/2016 22:17
Nitrite as $NO2^-$	ND		0.33	1	11/22/2016 22:17
Sulfate	**1.1**		0.10	1	11/22/2016 22:17

Surrogates	REC (%)	Qualifiers	Limits	
	84	S	90-115	11/22/2016 22:17

Analyst(s): AO   Analytical Comments: c2

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 11/21/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: E300.1
Analytical Method: E300.1
Unit: mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**IC3**	**130574**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/22/2016 22:57
Chloride	**40**		5.0	50	11/25/2016 06:38
Fluoride	ND		0.10	1	11/22/2016 22:57
Nitrate as N	**2.3**		0.10	1	11/22/2016 22:57
Nitrate as $NO3^-$	**10**		0.45	1	11/22/2016 22:57
Nitrite as N	ND		0.10	1	11/22/2016 22:57
Nitrite as $NO2^-$	ND		0.33	1	11/22/2016 22:57
Sulfate	**1.2**		0.10	1	11/22/2016 22:57

Surrogates	REC (%)	Qualifiers	Limits	
	72	S	90-115	11/22/2016 22:57

Analyst(s): AO

Analytical Comments: c2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**IC3**	**130574**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/22/2016 23:36
Chloride	**38**		5.0	50	11/25/2016 07:17
Fluoride	ND		0.10	1	11/22/2016 23:36
Nitrate as N	**2.3**		0.10	1	11/22/2016 23:36
Nitrate as $NO3^-$	**10**		0.45	1	11/22/2016 23:36
Nitrite as N	ND		0.10	1	11/22/2016 23:36
Nitrite as $NO2^-$	ND		0.33	1	11/22/2016 23:36
Sulfate	**1.0**		0.10	1	11/22/2016 23:36

Surrogates	REC (%)	Qualifiers	Limits	
	68	S	90-115	11/22/2016 23:36

Analyst(s): AO

Analytical Comments: c2

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 00:15
Chloride	**40**		5.0	50	11/25/2016 07:56
Fluoride	**0.11**		0.10	1	11/23/2016 00:15
Nitrate as N	**2.3**		0.10	1	11/23/2016 00:15
Nitrate as $\mathrm{NO3}^{-}$	**10**		0.45	1	11/23/2016 00:15
Nitrite as N	ND		0.10	1	11/23/2016 00:15
Nitrite as $\mathrm{NO2}^{-}$	ND		0.33	1	11/23/2016 00:15
Sulfate	**1.2**		0.10	1	11/23/2016 00:15

Surrogates	REC (%)	Qualifiers	Limits	
	90		90-115	11/23/2016 00:15

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 00:55
Chloride	**40**		5.0	50	11/25/2016 08:36
Fluoride	**0.13**		0.10	1	11/23/2016 00:55
Nitrate as N	**2.3**		0.10	1	11/23/2016 00:55
Nitrate as $\mathrm{NO3}^{-}$	**10**		0.45	1	11/23/2016 00:55
Nitrite as N	ND		0.10	1	11/23/2016 00:55
Nitrite as $\mathrm{NO2}^{-}$	ND		0.33	1	11/23/2016 00:55
Sulfate	**1.5**		0.10	1	11/23/2016 00:55

Surrogates	REC (%)	Qualifiers	Limits	
	96		90-115	11/23/2016 00:55

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 02:14
Chloride	**38**		5.0	50	11/25/2016 09:15
Fluoride	**0.25**		0.10	1	11/23/2016 02:14
Nitrate as N	**2.3**		0.10	1	11/23/2016 02:14
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 02:14
Nitrite as N	ND		0.10	1	11/23/2016 02:14
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 02:14
Sulfate	**1.4**		0.10	1	11/23/2016 02:14

Surrogates	REC (%)	Qualifiers	Limits	
	102		90-115	11/23/2016 02:14

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 02:53
Chloride	**39**		5.0	50	11/25/2016 09:54
Fluoride	**0.21**		0.10	1	11/23/2016 02:53
Nitrate as N	**2.3**		0.10	1	11/23/2016 02:53
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 02:53
Nitrite as N	ND		0.10	1	11/23/2016 02:53
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 02:53
Sulfate	**1.3**		0.10	1	11/23/2016 02:53

Surrogates	REC (%)	Qualifiers	Limits	
	101		90-115	11/23/2016 02:53

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 03:32
Chloride	**40**		5.0	50	11/25/2016 10:33
Fluoride	**0.20**		0.10	1	11/23/2016 03:32
Nitrate as N	**2.3**		0.10	1	11/23/2016 03:32
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 03:32
Nitrite as N	ND		0.10	1	11/23/2016 03:32
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 03:32
Sulfate	**1.3**		0.10	1	11/23/2016 03:32

Surrogates	REC (%)	Qualifiers	Limits	
	105		90-115	11/23/2016 03:32

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 04:12
Chloride	**41**		5.0	50	11/25/2016 11:13
Fluoride	**0.18**		0.10	1	11/23/2016 04:12
Nitrate as N	**2.3**		0.10	1	11/23/2016 04:12
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 04:12
Nitrite as N	ND		0.10	1	11/23/2016 04:12
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 04:12
Sulfate	**1.1**		0.10	1	11/23/2016 04:12

Surrogates	REC (%)	Qualifiers	Limits	
	105		90-115	11/23/2016 04:12

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 04:51
Chloride	**39**		5.0	50	11/25/2016 11:52
Fluoride	**0.18**		0.10	1	11/23/2016 04:51
Nitrate as N	**2.3**		0.10	1	11/23/2016 04:51
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 04:51
Nitrite as N	ND		0.10	1	11/23/2016 04:51
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 04:51
Sulfate	**2.6**		0.10	1	11/23/2016 04:51

Surrogates	REC (%)	Qualifiers	Limits	
	100		90-115	11/23/2016 04:51

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 05:30
Chloride	**42**		5.0	50	11/25/2016 13:49
Fluoride	**0.17**		0.10	1	11/23/2016 05:30
Nitrate as N	**2.3**		0.10	1	11/23/2016 05:30
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 05:30
Nitrite as N	ND		0.10	1	11/23/2016 05:30
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 05:30
Sulfate	**2.0**		0.10	1	11/23/2016 05:30

Surrogates	REC (%)	Qualifiers	Limits	
	97		90-115	11/23/2016 05:30

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 06:10
Chloride	**40**		5.0	50	11/25/2016 14:29
Fluoride	**0.22**		0.10	1	11/23/2016 06:10
Nitrate as N	**2.3**		0.10	1	11/23/2016 06:10
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 06:10
Nitrite as N	ND		0.10	1	11/23/2016 06:10
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 06:10
Sulfate	**1.7**		0.10	1	11/23/2016 06:10

Surrogates	REC (%)	Qualifiers	Limits	
	108		90-115	11/23/2016 06:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 06:49
Chloride	**41**		5.0	50	11/25/2016 15:08
Fluoride	**0.22**		0.10	1	11/23/2016 06:49
Nitrate as N	**2.3**		0.10	1	11/23/2016 06:49
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 06:49
Nitrite as N	ND		0.10	1	11/23/2016 06:49
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 06:49
Sulfate	**2.0**		0.10	1	11/23/2016 06:49

Surrogates	REC (%)	Qualifiers	Limits	
	109		90-115	11/23/2016 06:49

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 07:29
Chloride	**40**		5.0	50	11/25/2016 15:47
Fluoride	**0.20**		0.10	1	11/23/2016 07:29
Nitrate as N	**2.3**		0.10	1	11/23/2016 07:29
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 07:29
Nitrite as N	ND		0.10	1	11/23/2016 07:29
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 07:29
Sulfate	**1.4**		0.10	1	11/23/2016 07:29

Surrogates	REC (%)	Qualifiers	Limits	
	106		90-115	11/23/2016 07:29

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 08:09
Chloride	**41**		5.0	50	11/25/2016 16:26
Fluoride	**0.20**		0.10	1	11/23/2016 08:09
Nitrate as N	**2.3**		0.10	1	11/23/2016 08:09
Nitrate as $NO3^-$	**10**		0.45	1	11/23/2016 08:09
Nitrite as N	ND		0.10	1	11/23/2016 08:09
Nitrite as $NO2^-$	ND		0.33	1	11/23/2016 08:09
Sulfate	**1.6**		0.10	1	11/23/2016 08:09

Surrogates	REC (%)	Qualifiers	Limits	
	107		90-115	11/23/2016 08:09

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 09:29
Chloride	**42**		5.0	50	11/25/2016 17:06
Fluoride	**0.20**		0.10	1	11/23/2016 09:29
Nitrate as N	**2.3**		0.10	1	11/23/2016 09:29
Nitrate as $NO3^{-}$	**10**		0.45	1	11/23/2016 09:29
Nitrite as N	ND		0.10	1	11/23/2016 09:29
Nitrite as $NO2^{-}$	ND		0.33	1	11/23/2016 09:29
Sulfate	**1.7**		0.10	1	11/23/2016 09:29

Surrogates	REC (%)	Qualifiers	Limits	
	105		90-115	11/23/2016 09:29

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**IC3**	**130575**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromide	ND		0.10	1	11/23/2016 10:08
Chloride	**41**		5.0	50	11/25/2016 17:45
Fluoride	**0.16**		0.10	1	11/23/2016 10:08
Nitrate as N	**2.3**		0.10	1	11/23/2016 10:08
Nitrate as $NO3^{-}$	**10**		0.45	1	11/23/2016 10:08
Nitrite as N	ND		0.10	1	11/23/2016 10:08
Nitrite as $NO2^{-}$	ND		0.33	1	11/23/2016 10:08
Sulfate	**1.3**		0.10	1	11/23/2016 10:08

Surrogates	REC (%)	Qualifiers	Limits	
	103		90-115	11/23/2016 10:08

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16-11/26/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/22/2016 21:31

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 14:17

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 15:02

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**IC1**	**130543**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 15:47

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16-11/26/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 16:31

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 17:16

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 18:01

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 18:45

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16-11/26/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 21:00

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/23/2016 21:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 19:18

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 20:03

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16-11/26/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 20:48

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 21:32

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 22:17

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 23:02

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0
Date Prepared:	11/22/16-11/26/16	**Analytical Method:**	E314.0
Project:	SCVWD-IPR	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/25/2016 23:46

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 00:31

Analyst(s): AO

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0 modified
Date Prepared:	10/5/16	**Analytical Method:**	E314.0m
Project:	SCVWD-IPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @17.0 Ft	**1609D47-001A**	**Soil**	**09/28/2016 08:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 18:45

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @23.0 Ft	**1609D47-002A**	**Soil**	**09/28/2016 08:20**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 19:28

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 50.0 Ft	**1609D47-003A**	**Soil**	**09/28/2016 10:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 20:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @65.0 Ft	**1609D47-004A**	**Soil**	**09/28/2016 10:50**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 20:53

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E314.0 modified
Date Prepared:	10/5/16	**Analytical Method:**	E314.0m
Project:	SCVWD-IPR	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 85.0 Ft	**1609D47-005A**	**Soil**	**09/28/2016 12:15**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 21:36

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 95.0 Ft	**1609D47-006A**	**Soil**	**09/28/2016 12:30**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/04/2016 22:19

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 110.0 Ft	**1609D47-007A**	**Soil**	**09/28/2016 13:30**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 01:09

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 125 Ft	**1609D47-008A**	**Soil**	**09/28/2016 14:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 01:52

Analyst(s): AO

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 10/5/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: E314.0 modified
Analytical Method: E314.0m
Unit: mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 155 Ft	**1609D47-009A**	**Soil**	**09/28/2016 16:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 02:35

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 11:40
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 11:40
Benzene	ND	0.0050	1	10/06/2016 11:40
Bromobenzene	ND	0.0050	1	10/06/2016 11:40
Bromochloromethane	ND	0.0050	1	10/06/2016 11:40
Bromodichloromethane	ND	0.0050	1	10/06/2016 11:40
Bromoform	ND	0.0050	1	10/06/2016 11:40
Bromomethane	ND	0.0050	1	10/06/2016 11:40
2-Butanone (MEK)	ND	0.020	1	10/06/2016 11:40
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 11:40
n-Butyl benzene	ND	0.0050	1	10/06/2016 11:40
sec-Butyl benzene	ND	0.0050	1	10/06/2016 11:40
tert-Butyl benzene	ND	0.0050	1	10/06/2016 11:40
Carbon Disulfide	ND	0.0050	1	10/06/2016 11:40
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 11:40
Chlorobenzene	ND	0.0050	1	10/06/2016 11:40
Chloroethane	ND	0.0050	1	10/06/2016 11:40
Chloroform	ND	0.0050	1	10/06/2016 11:40
Chloromethane	ND	0.0050	1	10/06/2016 11:40
2-Chlorotoluene	ND	0.0050	1	10/06/2016 11:40
4-Chlorotoluene	ND	0.0050	1	10/06/2016 11:40
Dibromochloromethane	ND	0.0050	1	10/06/2016 11:40
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 11:40
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 11:40
Dibromomethane	ND	0.0050	1	10/06/2016 11:40
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 11:40
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 11:40
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 11:40
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 11:40
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 11:40
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 11:40
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 11:40
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 11:40
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 11:40
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 11:40
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 11:40
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 11:40

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 11:40
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 11:40
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 11:40
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 11:40
Ethylbenzene	ND	0.0050	1	10/06/2016 11:40
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 11:40
Freon 113	ND	0.0050	1	10/06/2016 11:40
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 11:40
Hexachloroethane	ND	0.0050	1	10/06/2016 11:40
2-Hexanone	ND	0.0050	1	10/06/2016 11:40
Isopropylbenzene	ND	0.0050	1	10/06/2016 11:40
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 11:40
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 11:40
Methylene chloride	ND	0.0050	1	10/06/2016 11:40
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 11:40
Naphthalene	ND	0.0050	1	10/06/2016 11:40
n-Propyl benzene	ND	0.0050	1	10/06/2016 11:40
Styrene	ND	0.0050	1	10/06/2016 11:40
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 11:40
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 11:40
Tetrachloroethene	ND	0.0050	1	10/06/2016 11:40
Toluene	ND	0.0050	1	10/06/2016 11:40
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 11:40
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 11:40
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 11:40
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 11:40
Trichloroethene	ND	0.0050	1	10/06/2016 11:40
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 11:40
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 11:40
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 11:40
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 11:40
Vinyl Chloride	ND	0.0050	1	10/06/2016 11:40
Xylenes, Total	ND	0.0050	1	10/06/2016 11:40

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC10**	**127393**

Analytes	Result		RL	DF	Date Analyzed
Surrogates	REC (%)	Qualifiers	Limits		
Dibromofluoromethane	98		70-130		10/06/2016 11:40
Toluene-d8	104		70-130		10/06/2016 11:40
4-BFB	88		70-130		10/06/2016 11:40
Benzene-d6	54	S	60-140		10/06/2016 11:40
Ethylbenzene-d10	82		60-140		10/06/2016 11:40
1,2-DCB-d4	79		60-140		10/06/2016 11:40

Analyst(s): KF

Analytical Comments: c2

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 12:20
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 12:20
Benzene	ND	0.0050	1	10/06/2016 12:20
Bromobenzene	ND	0.0050	1	10/06/2016 12:20
Bromochloromethane	ND	0.0050	1	10/06/2016 12:20
Bromodichloromethane	ND	0.0050	1	10/06/2016 12:20
Bromoform	ND	0.0050	1	10/06/2016 12:20
Bromomethane	ND	0.0050	1	10/06/2016 12:20
2-Butanone (MEK)	ND	0.020	1	10/06/2016 12:20
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 12:20
n-Butyl benzene	ND	0.0050	1	10/06/2016 12:20
sec-Butyl benzene	ND	0.0050	1	10/06/2016 12:20
tert-Butyl benzene	ND	0.0050	1	10/06/2016 12:20
Carbon Disulfide	ND	0.0050	1	10/06/2016 12:20
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 12:20
Chlorobenzene	ND	0.0050	1	10/06/2016 12:20
Chloroethane	ND	0.0050	1	10/06/2016 12:20
Chloroform	ND	0.0050	1	10/06/2016 12:20
Chloromethane	ND	0.0050	1	10/06/2016 12:20
2-Chlorotoluene	ND	0.0050	1	10/06/2016 12:20
4-Chlorotoluene	ND	0.0050	1	10/06/2016 12:20
Dibromochloromethane	ND	0.0050	1	10/06/2016 12:20
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 12:20
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 12:20
Dibromomethane	ND	0.0050	1	10/06/2016 12:20
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:20
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:20
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:20
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 12:20
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 12:20
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 12:20
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 12:20
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 12:20
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 12:20
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 12:20
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 12:20
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 12:20

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 12:20
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 12:20
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 12:20
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 12:20
Ethylbenzene	ND	0.0050	1	10/06/2016 12:20
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 12:20
Freon 113	ND	0.0050	1	10/06/2016 12:20
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 12:20
Hexachloroethane	ND	0.0050	1	10/06/2016 12:20
2-Hexanone	ND	0.0050	1	10/06/2016 12:20
Isopropylbenzene	ND	0.0050	1	10/06/2016 12:20
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 12:20
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 12:20
Methylene chloride	ND	0.0050	1	10/06/2016 12:20
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 12:20
Naphthalene	ND	0.0050	1	10/06/2016 12:20
n-Propyl benzene	ND	0.0050	1	10/06/2016 12:20
Styrene	ND	0.0050	1	10/06/2016 12:20
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 12:20
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 12:20
Tetrachloroethene	ND	0.0050	1	10/06/2016 12:20
Toluene	ND	0.0050	1	10/06/2016 12:20
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 12:20
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 12:20
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 12:20
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 12:20
Trichloroethene	ND	0.0050	1	10/06/2016 12:20
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 12:20
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 12:20
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 12:20
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 12:20
Vinyl Chloride	ND	0.0050	1	10/06/2016 12:20
Xylenes, Total	ND	0.0050	1	10/06/2016 12:20

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 12:20
Toluene-d8	103	70-130		10/06/2016 12:20
4-BFB	85	70-130		10/06/2016 12:20
Benzene-d6	91	60-140		10/06/2016 12:20
Ethylbenzene-d10	112	60-140		10/06/2016 12:20
1,2-DCB-d4	82	60-140		10/06/2016 12:20

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 12:58
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 12:58
Benzene	ND	0.0050	1	10/06/2016 12:58
Bromobenzene	ND	0.0050	1	10/06/2016 12:58
Bromochloromethane	ND	0.0050	1	10/06/2016 12:58
Bromodichloromethane	ND	0.0050	1	10/06/2016 12:58
Bromoform	ND	0.0050	1	10/06/2016 12:58
Bromomethane	ND	0.0050	1	10/06/2016 12:58
2-Butanone (MEK)	ND	0.020	1	10/06/2016 12:58
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 12:58
n-Butyl benzene	ND	0.0050	1	10/06/2016 12:58
sec-Butyl benzene	ND	0.0050	1	10/06/2016 12:58
tert-Butyl benzene	ND	0.0050	1	10/06/2016 12:58
Carbon Disulfide	ND	0.0050	1	10/06/2016 12:58
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 12:58
Chlorobenzene	ND	0.0050	1	10/06/2016 12:58
Chloroethane	ND	0.0050	1	10/06/2016 12:58
Chloroform	ND	0.0050	1	10/06/2016 12:58
Chloromethane	ND	0.0050	1	10/06/2016 12:58
2-Chlorotoluene	ND	0.0050	1	10/06/2016 12:58
4-Chlorotoluene	ND	0.0050	1	10/06/2016 12:58
Dibromochloromethane	ND	0.0050	1	10/06/2016 12:58
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 12:58
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 12:58
Dibromomethane	ND	0.0050	1	10/06/2016 12:58
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:58
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:58
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 12:58
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 12:58
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 12:58
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 12:58
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 12:58
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 12:58
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 12:58
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 12:58
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 12:58
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 12:58

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 12:58
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 12:58
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 12:58
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 12:58
Ethylbenzene	ND	0.0050	1	10/06/2016 12:58
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 12:58
Freon 113	ND	0.0050	1	10/06/2016 12:58
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 12:58
Hexachloroethane	ND	0.0050	1	10/06/2016 12:58
2-Hexanone	ND	0.0050	1	10/06/2016 12:58
Isopropylbenzene	ND	0.0050	1	10/06/2016 12:58
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 12:58
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 12:58
Methylene chloride	ND	0.0050	1	10/06/2016 12:58
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 12:58
Naphthalene	ND	0.0050	1	10/06/2016 12:58
n-Propyl benzene	ND	0.0050	1	10/06/2016 12:58
Styrene	ND	0.0050	1	10/06/2016 12:58
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 12:58
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 12:58
Tetrachloroethene	ND	0.0050	1	10/06/2016 12:58
Toluene	ND	0.0050	1	10/06/2016 12:58
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 12:58
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 12:58
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 12:58
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 12:58
Trichloroethene	ND	0.0050	1	10/06/2016 12:58
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 12:58
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 12:58
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 12:58
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 12:58
Vinyl Chloride	ND	0.0050	1	10/06/2016 12:58
Xylenes, Total	ND	0.0050	1	10/06/2016 12:58

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 12:58
Toluene-d8	102	70-130		10/06/2016 12:58
4-BFB	86	70-130		10/06/2016 12:58
Benzene-d6	97	60-140		10/06/2016 12:58
Ethylbenzene-d10	123	60-140		10/06/2016 12:58
1,2-DCB-d4	88	60-140		10/06/2016 12:58

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 14:19
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 14:19
Benzene	ND	0.0050	1	10/06/2016 14:19
Bromobenzene	ND	0.0050	1	10/06/2016 14:19
Bromochloromethane	ND	0.0050	1	10/06/2016 14:19
Bromodichloromethane	ND	0.0050	1	10/06/2016 14:19
Bromoform	ND	0.0050	1	10/06/2016 14:19
Bromomethane	ND	0.0050	1	10/06/2016 14:19
2-Butanone (MEK)	ND	0.020	1	10/06/2016 14:19
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 14:19
n-Butyl benzene	ND	0.0050	1	10/06/2016 14:19
sec-Butyl benzene	ND	0.0050	1	10/06/2016 14:19
tert-Butyl benzene	ND	0.0050	1	10/06/2016 14:19
Carbon Disulfide	ND	0.0050	1	10/06/2016 14:19
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 14:19
Chlorobenzene	ND	0.0050	1	10/06/2016 14:19
Chloroethane	ND	0.0050	1	10/06/2016 14:19
Chloroform	ND	0.0050	1	10/06/2016 14:19
Chloromethane	ND	0.0050	1	10/06/2016 14:19
2-Chlorotoluene	ND	0.0050	1	10/06/2016 14:19
4-Chlorotoluene	ND	0.0050	1	10/06/2016 14:19
Dibromochloromethane	ND	0.0050	1	10/06/2016 14:19
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 14:19
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 14:19
Dibromomethane	ND	0.0050	1	10/06/2016 14:19
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 14:19
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 14:19
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 14:19
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 14:19
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 14:19
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 14:19
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 14:19
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 14:19
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 14:19
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 14:19
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 14:19
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 14:19

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 14:19
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 14:19
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 14:19
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 14:19
Ethylbenzene	ND	0.0050	1	10/06/2016 14:19
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 14:19
Freon 113	ND	0.0050	1	10/06/2016 14:19
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 14:19
Hexachloroethane	ND	0.0050	1	10/06/2016 14:19
2-Hexanone	ND	0.0050	1	10/06/2016 14:19
Isopropylbenzene	ND	0.0050	1	10/06/2016 14:19
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 14:19
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 14:19
Methylene chloride	ND	0.0050	1	10/06/2016 14:19
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 14:19
Naphthalene	ND	0.0050	1	10/06/2016 14:19
n-Propyl benzene	ND	0.0050	1	10/06/2016 14:19
Styrene	ND	0.0050	1	10/06/2016 14:19
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 14:19
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 14:19
Tetrachloroethene	ND	0.0050	1	10/06/2016 14:19
Toluene	ND	0.0050	1	10/06/2016 14:19
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 14:19
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 14:19
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 14:19
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 14:19
Trichloroethene	ND	0.0050	1	10/06/2016 14:19
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 14:19
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 14:19
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 14:19
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 14:19
Vinyl Chloride	ND	0.0050	1	10/06/2016 14:19
Xylenes, Total	ND	0.0050	1	10/06/2016 14:19

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 14:19
Toluene-d8	104	70-130		10/06/2016 14:19
4-BFB	81	70-130		10/06/2016 14:19
Benzene-d6	91	60-140		10/06/2016 14:19
Ethylbenzene-d10	111	60-140		10/06/2016 14:19
1,2-DCB-d4	83	60-140		10/06/2016 14:19

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 15:00
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 15:00
Benzene	ND	0.0050	1	10/06/2016 15:00
Bromobenzene	ND	0.0050	1	10/06/2016 15:00
Bromochloromethane	ND	0.0050	1	10/06/2016 15:00
Bromodichloromethane	ND	0.0050	1	10/06/2016 15:00
Bromoform	ND	0.0050	1	10/06/2016 15:00
Bromomethane	ND	0.0050	1	10/06/2016 15:00
2-Butanone (MEK)	ND	0.020	1	10/06/2016 15:00
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 15:00
n-Butyl benzene	ND	0.0050	1	10/06/2016 15:00
sec-Butyl benzene	ND	0.0050	1	10/06/2016 15:00
tert-Butyl benzene	ND	0.0050	1	10/06/2016 15:00
Carbon Disulfide	ND	0.0050	1	10/06/2016 15:00
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 15:00
Chlorobenzene	ND	0.0050	1	10/06/2016 15:00
Chloroethane	ND	0.0050	1	10/06/2016 15:00
Chloroform	ND	0.0050	1	10/06/2016 15:00
Chloromethane	ND	0.0050	1	10/06/2016 15:00
2-Chlorotoluene	ND	0.0050	1	10/06/2016 15:00
4-Chlorotoluene	ND	0.0050	1	10/06/2016 15:00
Dibromochloromethane	ND	0.0050	1	10/06/2016 15:00
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 15:00
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 15:00
Dibromomethane	ND	0.0050	1	10/06/2016 15:00
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:00
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:00
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:00
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 15:00
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 15:00
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 15:00
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 15:00
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 15:00
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 15:00
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 15:00
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 15:00
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 15:00

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 15:00
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 15:00
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 15:00
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 15:00
Ethylbenzene	ND	0.0050	1	10/06/2016 15:00
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 15:00
Freon 113	ND	0.0050	1	10/06/2016 15:00
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 15:00
Hexachloroethane	ND	0.0050	1	10/06/2016 15:00
2-Hexanone	ND	0.0050	1	10/06/2016 15:00
Isopropylbenzene	ND	0.0050	1	10/06/2016 15:00
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 15:00
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 15:00
Methylene chloride	ND	0.0050	1	10/06/2016 15:00
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 15:00
Naphthalene	ND	0.0050	1	10/06/2016 15:00
n-Propyl benzene	ND	0.0050	1	10/06/2016 15:00
Styrene	ND	0.0050	1	10/06/2016 15:00
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 15:00
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 15:00
Tetrachloroethene	ND	0.0050	1	10/06/2016 15:00
Toluene	ND	0.0050	1	10/06/2016 15:00
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 15:00
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 15:00
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 15:00
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 15:00
Trichloroethene	ND	0.0050	1	10/06/2016 15:00
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 15:00
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 15:00
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 15:00
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 15:00
Vinyl Chloride	ND	0.0050	1	10/06/2016 15:00
Xylenes, Total	ND	0.0050	1	10/06/2016 15:00

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 15:00
Toluene-d8	102	70-130		10/06/2016 15:00
4-BFB	86	70-130		10/06/2016 15:00
Benzene-d6	88	60-140		10/06/2016 15:00
Ethylbenzene-d10	107	60-140		10/06/2016 15:00
1,2-DCB-d4	81	60-140		10/06/2016 15:00

Analyst(s): AK

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC18**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/03/2016 12:34
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/03/2016 12:34
Benzene	ND	0.0050	1	10/03/2016 12:34
Bromobenzene	ND	0.0050	1	10/03/2016 12:34
Bromochloromethane	ND	0.0050	1	10/03/2016 12:34
Bromodichloromethane	ND	0.0050	1	10/03/2016 12:34
Bromoform	ND	0.0050	1	10/03/2016 12:34
Bromomethane	ND	0.0050	1	10/03/2016 12:34
2-Butanone (MEK)	ND	0.020	1	10/03/2016 12:34
t-Butyl alcohol (TBA)	ND	0.050	1	10/03/2016 12:34
n-Butyl benzene	ND	0.0050	1	10/03/2016 12:34
sec-Butyl benzene	ND	0.0050	1	10/03/2016 12:34
tert-Butyl benzene	ND	0.0050	1	10/03/2016 12:34
Carbon Disulfide	ND	0.0050	1	10/03/2016 12:34
Carbon Tetrachloride	ND	0.0050	1	10/03/2016 12:34
Chlorobenzene	ND	0.0050	1	10/03/2016 12:34
Chloroethane	ND	0.0050	1	10/03/2016 12:34
Chloroform	ND	0.0050	1	10/03/2016 12:34
Chloromethane	ND	0.0050	1	10/03/2016 12:34
2-Chlorotoluene	ND	0.0050	1	10/03/2016 12:34
4-Chlorotoluene	ND	0.0050	1	10/03/2016 12:34
Dibromochloromethane	ND	0.0050	1	10/03/2016 12:34
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/03/2016 12:34
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/03/2016 12:34
Dibromomethane	ND	0.0050	1	10/03/2016 12:34
1,2-Dichlorobenzene	ND	0.0050	1	10/03/2016 12:34
1,3-Dichlorobenzene	ND	0.0050	1	10/03/2016 12:34
1,4-Dichlorobenzene	ND	0.0050	1	10/03/2016 12:34
Dichlorodifluoromethane	ND	0.0050	1	10/03/2016 12:34
1,1-Dichloroethane	ND	0.0050	1	10/03/2016 12:34
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/03/2016 12:34
1,1-Dichloroethene	ND	0.0050	1	10/03/2016 12:34
cis-1,2-Dichloroethene	ND	0.0050	1	10/03/2016 12:34
trans-1,2-Dichloroethene	ND	0.0050	1	10/03/2016 12:34
1,2-Dichloropropane	ND	0.0050	1	10/03/2016 12:34
1,3-Dichloropropane	ND	0.0050	1	10/03/2016 12:34
2,2-Dichloropropane	ND	0.0050	1	10/03/2016 12:34

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC18**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/03/2016 12:34
cis-1,3-Dichloropropene	ND	0.0050	1	10/03/2016 12:34
trans-1,3-Dichloropropene	ND	0.0050	1	10/03/2016 12:34
Diisopropyl ether (DIPE)	ND	0.0050	1	10/03/2016 12:34
Ethylbenzene	ND	0.0050	1	10/03/2016 12:34
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/03/2016 12:34
Freon 113	ND	0.0050	1	10/03/2016 12:34
Hexachlorobutadiene	ND	0.0050	1	10/03/2016 12:34
Hexachloroethane	ND	0.0050	1	10/03/2016 12:34
2-Hexanone	ND	0.0050	1	10/03/2016 12:34
Isopropylbenzene	ND	0.0050	1	10/03/2016 12:34
4-Isopropyl toluene	ND	0.0050	1	10/03/2016 12:34
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/03/2016 12:34
Methylene chloride	ND	0.0050	1	10/03/2016 12:34
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/03/2016 12:34
Naphthalene	ND	0.0050	1	10/03/2016 12:34
n-Propyl benzene	ND	0.0050	1	10/03/2016 12:34
Styrene	ND	0.0050	1	10/03/2016 12:34
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/03/2016 12:34
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/03/2016 12:34
Tetrachloroethene	ND	0.0050	1	10/03/2016 12:34
Toluene	ND	0.0050	1	10/03/2016 12:34
1,2,3-Trichlorobenzene	ND	0.0050	1	10/03/2016 12:34
1,2,4-Trichlorobenzene	ND	0.0050	1	10/03/2016 12:34
1,1,1-Trichloroethane	ND	0.0050	1	10/03/2016 12:34
1,1,2-Trichloroethane	ND	0.0050	1	10/03/2016 12:34
Trichloroethene	ND	0.0050	1	10/03/2016 12:34
Trichlorofluoromethane	ND	0.0050	1	10/03/2016 12:34
1,2,3-Trichloropropane	ND	0.0050	1	10/03/2016 12:34
1,2,4-Trimethylbenzene	ND	0.0050	1	10/03/2016 12:34
1,3,5-Trimethylbenzene	ND	0.0050	1	10/03/2016 12:34
Vinyl Chloride	ND	0.0050	1	10/03/2016 12:34
Xylenes, Total	ND	0.0050	1	10/03/2016 12:34

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC18**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	89	70-130		10/03/2016 12:34
Toluene-d8	108	70-130		10/03/2016 12:34
4-BFB	88	70-130		10/03/2016 12:34
Benzene-d6	87	60-140		10/03/2016 12:34
Ethylbenzene-d10	105	60-140		10/03/2016 12:34
1,2-DCB-d4	73	60-140		10/03/2016 12:34

Analyst(s): AK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 15:40
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 15:40
Benzene	ND	0.0050	1	10/06/2016 15:40
Bromobenzene	ND	0.0050	1	10/06/2016 15:40
Bromochloromethane	ND	0.0050	1	10/06/2016 15:40
Bromodichloromethane	ND	0.0050	1	10/06/2016 15:40
Bromoform	ND	0.0050	1	10/06/2016 15:40
Bromomethane	ND	0.0050	1	10/06/2016 15:40
2-Butanone (MEK)	ND	0.020	1	10/06/2016 15:40
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 15:40
n-Butyl benzene	ND	0.0050	1	10/06/2016 15:40
sec-Butyl benzene	ND	0.0050	1	10/06/2016 15:40
tert-Butyl benzene	ND	0.0050	1	10/06/2016 15:40
Carbon Disulfide	ND	0.0050	1	10/06/2016 15:40
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 15:40
Chlorobenzene	ND	0.0050	1	10/06/2016 15:40
Chloroethane	ND	0.0050	1	10/06/2016 15:40
Chloroform	ND	0.0050	1	10/06/2016 15:40
Chloromethane	ND	0.0050	1	10/06/2016 15:40
2-Chlorotoluene	ND	0.0050	1	10/06/2016 15:40
4-Chlorotoluene	ND	0.0050	1	10/06/2016 15:40
Dibromochloromethane	ND	0.0050	1	10/06/2016 15:40
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 15:40
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 15:40
Dibromomethane	ND	0.0050	1	10/06/2016 15:40
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:40
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:40
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 15:40
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 15:40
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 15:40
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 15:40
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 15:40
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 15:40
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 15:40
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 15:40
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 15:40
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 15:40

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 15:40
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 15:40
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 15:40
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 15:40
Ethylbenzene	ND	0.0050	1	10/06/2016 15:40
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 15:40
Freon 113	ND	0.0050	1	10/06/2016 15:40
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 15:40
Hexachloroethane	ND	0.0050	1	10/06/2016 15:40
2-Hexanone	ND	0.0050	1	10/06/2016 15:40
Isopropylbenzene	ND	0.0050	1	10/06/2016 15:40
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 15:40
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 15:40
Methylene chloride	ND	0.0050	1	10/06/2016 15:40
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 15:40
Naphthalene	ND	0.0050	1	10/06/2016 15:40
n-Propyl benzene	ND	0.0050	1	10/06/2016 15:40
Styrene	ND	0.0050	1	10/06/2016 15:40
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 15:40
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 15:40
Tetrachloroethene	ND	0.0050	1	10/06/2016 15:40
Toluene	ND	0.0050	1	10/06/2016 15:40
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 15:40
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 15:40
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 15:40
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 15:40
Trichloroethene	ND	0.0050	1	10/06/2016 15:40
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 15:40
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 15:40
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 15:40
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 15:40
Vinyl Chloride	ND	0.0050	1	10/06/2016 15:40
Xylenes, Total	ND	0.0050	1	10/06/2016 15:40

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 15:40
Toluene-d8	101	70-130		10/06/2016 15:40
4-BFB	84	70-130		10/06/2016 15:40
Benzene-d6	91	60-140		10/06/2016 15:40
Ethylbenzene-d10	111	60-140		10/06/2016 15:40
1,2-DCB-d4	82	60-140		10/06/2016 15:40

Analyst(s): HK

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 16:21
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 16:21
Benzene	ND	0.0050	1	10/06/2016 16:21
Bromobenzene	ND	0.0050	1	10/06/2016 16:21
Bromochloromethane	ND	0.0050	1	10/06/2016 16:21
Bromodichloromethane	ND	0.0050	1	10/06/2016 16:21
Bromoform	ND	0.0050	1	10/06/2016 16:21
Bromomethane	ND	0.0050	1	10/06/2016 16:21
2-Butanone (MEK)	ND	0.020	1	10/06/2016 16:21
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 16:21
n-Butyl benzene	ND	0.0050	1	10/06/2016 16:21
sec-Butyl benzene	ND	0.0050	1	10/06/2016 16:21
tert-Butyl benzene	ND	0.0050	1	10/06/2016 16:21
Carbon Disulfide	ND	0.0050	1	10/06/2016 16:21
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 16:21
Chlorobenzene	ND	0.0050	1	10/06/2016 16:21
Chloroethane	ND	0.0050	1	10/06/2016 16:21
Chloroform	ND	0.0050	1	10/06/2016 16:21
Chloromethane	ND	0.0050	1	10/06/2016 16:21
2-Chlorotoluene	ND	0.0050	1	10/06/2016 16:21
4-Chlorotoluene	ND	0.0050	1	10/06/2016 16:21
Dibromochloromethane	ND	0.0050	1	10/06/2016 16:21
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 16:21
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 16:21
Dibromomethane	ND	0.0050	1	10/06/2016 16:21
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 16:21
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 16:21
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 16:21
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 16:21
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 16:21
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 16:21
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 16:21
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 16:21
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 16:21
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 16:21
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 16:21
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 16:21

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 16:21
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 16:21
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 16:21
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 16:21
Ethylbenzene	ND	0.0050	1	10/06/2016 16:21
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 16:21
Freon 113	ND	0.0050	1	10/06/2016 16:21
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 16:21
Hexachloroethane	ND	0.0050	1	10/06/2016 16:21
2-Hexanone	ND	0.0050	1	10/06/2016 16:21
Isopropylbenzene	ND	0.0050	1	10/06/2016 16:21
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 16:21
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 16:21
Methylene chloride	ND	0.0050	1	10/06/2016 16:21
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 16:21
Naphthalene	ND	0.0050	1	10/06/2016 16:21
n-Propyl benzene	ND	0.0050	1	10/06/2016 16:21
Styrene	ND	0.0050	1	10/06/2016 16:21
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 16:21
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 16:21
Tetrachloroethene	ND	0.0050	1	10/06/2016 16:21
Toluene	ND	0.0050	1	10/06/2016 16:21
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 16:21
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 16:21
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 16:21
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 16:21
Trichloroethene	ND	0.0050	1	10/06/2016 16:21
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 16:21
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 16:21
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 16:21
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 16:21
Vinyl Chloride	ND	0.0050	1	10/06/2016 16:21
Xylenes, Total	ND	0.0050	1	10/06/2016 16:21

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC10**	**127393**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 16:21
Toluene-d8	102	70-130		10/06/2016 16:21
4-BFB	84	70-130		10/06/2016 16:21
Benzene-d6	90	60-140		10/06/2016 16:21
Ethylbenzene-d10	111	60-140		10/06/2016 16:21
1,2-DCB-d4	84	60-140		10/06/2016 16:21

Analyst(s): JEM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	**1609D47-018A**	**Soil**	**09/28/2016 16:00**	**GC10**	**127722**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 17:01
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 17:01
Benzene	ND	0.0050	1	10/06/2016 17:01
Bromobenzene	ND	0.0050	1	10/06/2016 17:01
Bromochloromethane	ND	0.0050	1	10/06/2016 17:01
Bromodichloromethane	ND	0.0050	1	10/06/2016 17:01
Bromoform	ND	0.0050	1	10/06/2016 17:01
Bromomethane	ND	0.0050	1	10/06/2016 17:01
2-Butanone (MEK)	ND	0.020	1	10/06/2016 17:01
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 17:01
n-Butyl benzene	ND	0.0050	1	10/06/2016 17:01
sec-Butyl benzene	ND	0.0050	1	10/06/2016 17:01
tert-Butyl benzene	ND	0.0050	1	10/06/2016 17:01
Carbon Disulfide	ND	0.0050	1	10/06/2016 17:01
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 17:01
Chlorobenzene	ND	0.0050	1	10/06/2016 17:01
Chloroethane	ND	0.0050	1	10/06/2016 17:01
Chloroform	ND	0.0050	1	10/06/2016 17:01
Chloromethane	ND	0.0050	1	10/06/2016 17:01
2-Chlorotoluene	ND	0.0050	1	10/06/2016 17:01
4-Chlorotoluene	ND	0.0050	1	10/06/2016 17:01
Dibromochloromethane	ND	0.0050	1	10/06/2016 17:01
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 17:01
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 17:01
Dibromomethane	ND	0.0050	1	10/06/2016 17:01
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 17:01
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 17:01
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 17:01
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 17:01
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 17:01
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 17:01
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 17:01
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 17:01
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 17:01
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 17:01
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 17:01
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 17:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	**1609D47-018A**	**Soil**	**09/28/2016 16:00**	**GC10**	**127722**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 17:01
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 17:01
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 17:01
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 17:01
Ethylbenzene	ND	0.0050	1	10/06/2016 17:01
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 17:01
Freon 113	ND	0.0050	1	10/06/2016 17:01
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 17:01
Hexachloroethane	ND	0.0050	1	10/06/2016 17:01
2-Hexanone	ND	0.0050	1	10/06/2016 17:01
Isopropylbenzene	ND	0.0050	1	10/06/2016 17:01
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 17:01
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 17:01
Methylene chloride	ND	0.0050	1	10/06/2016 17:01
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 17:01
Naphthalene	ND	0.0050	1	10/06/2016 17:01
n-Propyl benzene	ND	0.0050	1	10/06/2016 17:01
Styrene	ND	0.0050	1	10/06/2016 17:01
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 17:01
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 17:01
Tetrachloroethene	**0.0079**	0.0050	1	10/06/2016 17:01
Toluene	ND	0.0050	1	10/06/2016 17:01
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 17:01
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 17:01
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 17:01
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 17:01
Trichloroethene	ND	0.0050	1	10/06/2016 17:01
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 17:01
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 17:01
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 17:01
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 17:01
Vinyl Chloride	ND	0.0050	1	10/06/2016 17:01
Xylenes, Total	ND	0.0050	1	10/06/2016 17:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW5030B
Date Prepared:	9/29/16-10/6/16	**Analytical Method:**	SW8260B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	1609D47-018A	Soil	09/28/2016 16:00	GC10	127722

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	100	70-130		10/06/2016 17:01
Toluene-d8	102	70-130		10/06/2016 17:01
4-BFB	86	70-130		10/06/2016 17:01
Benzene-d6	93	60-140		10/06/2016 17:01
Ethylbenzene-d10	115	60-140		10/06/2016 17:01
1,2-DCB-d4	83	60-140		10/06/2016 17:01

Analyst(s): JEM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	1.2	5	10/04/2016 12:49
Acenaphthylene	ND	1.2	5	10/04/2016 12:49
Acetochlor	ND	1.2	5	10/04/2016 12:49
Anthracene	ND	1.2	5	10/04/2016 12:49
Benzidine	ND	6.5	5	10/04/2016 12:49
Benzo (a) anthracene	ND	1.2	5	10/04/2016 12:49
Benzo (a) pyrene	ND	1.2	5	10/04/2016 12:49
Benzo (b) fluoranthene	ND	1.2	5	10/04/2016 12:49
Benzo (g,h,i) perylene	ND	1.2	5	10/04/2016 12:49
Benzo (k) fluoranthene	ND	1.2	5	10/04/2016 12:49
Benzyl Alcohol	ND	6.5	5	10/04/2016 12:49
1,1-Biphenyl	ND	1.2	5	10/04/2016 12:49
Bis (2-chloroethoxy) Methane	ND	1.2	5	10/04/2016 12:49
Bis (2-chloroethyl) Ether	ND	1.2	5	10/04/2016 12:49
Bis (2-chloroisopropyl) Ether	ND	1.2	5	10/04/2016 12:49
Bis (2-ethylhexyl) Adipate	ND	1.2	5	10/04/2016 12:49
Bis (2-ethylhexyl) Phthalate	ND	1.2	5	10/04/2016 12:49
4-Bromophenyl Phenyl Ether	ND	1.2	5	10/04/2016 12:49
Butylbenzyl Phthalate	ND	1.2	5	10/04/2016 12:49
4-Chloroaniline	ND	2.5	5	10/04/2016 12:49
4-Chloro-3-methylphenol	ND	1.2	5	10/04/2016 12:49
2-Chloronaphthalene	ND	1.2	5	10/04/2016 12:49
2-Chlorophenol	ND	1.2	5	10/04/2016 12:49
4-Chlorophenyl Phenyl Ether	ND	1.2	5	10/04/2016 12:49
Chrysene	ND	1.2	5	10/04/2016 12:49
Dibenzo (a,h) anthracene	ND	1.2	5	10/04/2016 12:49
Dibenzofuran	ND	1.2	5	10/04/2016 12:49
Di-n-butyl Phthalate	ND	1.2	5	10/04/2016 12:49
1,2-Dichlorobenzene	ND	1.2	5	10/04/2016 12:49
1,3-Dichlorobenzene	ND	1.2	5	10/04/2016 12:49
1,4-Dichlorobenzene	ND	1.2	5	10/04/2016 12:49
3,3-Dichlorobenzidine	ND	2.5	5	10/04/2016 12:49
2,4-Dichlorophenol	ND	1.2	5	10/04/2016 12:49
Diethyl Phthalate	ND	1.2	5	10/04/2016 12:49
2,4-Dimethylphenol	ND	1.2	5	10/04/2016 12:49
Dimethyl Phthalate	ND	1.2	5	10/04/2016 12:49
4,6-Dinitro-2-methylphenol	ND	6.5	5	10/04/2016 12:49

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	32	5	10/04/2016 12:49
2,4-Dinitrotoluene	ND	1.2	5	10/04/2016 12:49
2,6-Dinitrotoluene	ND	1.2	5	10/04/2016 12:49
Di-n-octyl Phthalate	ND	2.5	5	10/04/2016 12:49
1,2-Diphenylhydrazine	ND	1.2	5	10/04/2016 12:49
Fluoranthene	ND	1.2	5	10/04/2016 12:49
Fluorene	ND	1.2	5	10/04/2016 12:49
Hexachlorobenzene	ND	1.2	5	10/04/2016 12:49
Hexachlorobutadiene	ND	1.2	5	10/04/2016 12:49
Hexachlorocyclopentadiene	ND	6.5	5	10/04/2016 12:49
Hexachloroethane	ND	1.2	5	10/04/2016 12:49
Indeno (1,2,3-cd) pyrene	ND	1.2	5	10/04/2016 12:49
Isophorone	ND	1.2	5	10/04/2016 12:49
2-Methylnaphthalene	ND	1.2	5	10/04/2016 12:49
2-Methylphenol (o-Cresol)	ND	1.2	5	10/04/2016 12:49
3 & 4-Methylphenol (m,p-Cresol)	ND	1.2	5	10/04/2016 12:49
Naphthalene	ND	1.2	5	10/04/2016 12:49
2-Nitroaniline	ND	6.5	5	10/04/2016 12:49
3-Nitroaniline	ND	6.5	5	10/04/2016 12:49
4-Nitroaniline	ND	6.5	5	10/04/2016 12:49
Nitrobenzene	ND	1.2	5	10/04/2016 12:49
2-Nitrophenol	ND	6.5	5	10/04/2016 12:49
4-Nitrophenol	ND	6.5	5	10/04/2016 12:49
N-Nitrosodiphenylamine	ND	1.2	5	10/04/2016 12:49
N-Nitrosodi-n-propylamine	ND	1.2	5	10/04/2016 12:49
Pentachlorophenol	ND	6.5	5	10/04/2016 12:49
Phenanthrene	ND	1.2	5	10/04/2016 12:49
Phenol	ND	1.2	5	10/04/2016 12:49
Pyrene	ND	1.2	5	10/04/2016 12:49
1,2,4-Trichlorobenzene	ND	1.2	5	10/04/2016 12:49
2,4,5-Trichlorophenol	ND	1.2	5	10/04/2016 12:49
2,4,6-Trichlorophenol	ND	1.2	5	10/04/2016 12:49

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 170-17.5	**1609D47-010A**	**Soil**	**09/28/2016 08:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	123	30-130		10/04/2016 12:49
Phenol-d5	114	30-130		10/04/2016 12:49
Nitrobenzene-d5	111	30-130		10/04/2016 12:49
2-Fluorobiphenyl	117	30-130		10/04/2016 12:49
2,4,6-Tribromophenol	93	16-130		10/04/2016 12:49
4-Terphenyl-d14	115	30-130		10/04/2016 12:49

Analyst(s): REB

Analytical Comments: a3

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 13:17
Acenaphthylene	ND	0.25	1	10/04/2016 13:17
Acetochlor	ND	0.25	1	10/04/2016 13:17
Anthracene	ND	0.25	1	10/04/2016 13:17
Benzidine	ND	1.3	1	10/04/2016 13:17
Benzo (a) anthracene	ND	0.25	1	10/04/2016 13:17
Benzo (a) pyrene	ND	0.25	1	10/04/2016 13:17
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 13:17
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 13:17
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 13:17
Benzyl Alcohol	ND	1.3	1	10/04/2016 13:17
1,1-Biphenyl	ND	0.25	1	10/04/2016 13:17
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 13:17
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 13:17
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 13:17
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 13:17
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 13:17
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 13:17
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 13:17
4-Chloroaniline	ND	0.50	1	10/04/2016 13:17
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 13:17
2-Chloronaphthalene	ND	0.25	1	10/04/2016 13:17
2-Chlorophenol	ND	0.25	1	10/04/2016 13:17
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 13:17
Chrysene	ND	0.25	1	10/04/2016 13:17
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 13:17
Dibenzofuran	ND	0.25	1	10/04/2016 13:17
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 13:17
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 13:17
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 13:17
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 13:17
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 13:17
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 13:17
Diethyl Phthalate	ND	0.25	1	10/04/2016 13:17
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 13:17
Dimethyl Phthalate	ND	0.25	1	10/04/2016 13:17
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 13:17

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 13:17
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 13:17
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 13:17
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 13:17
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 13:17
Fluoranthene	ND	0.25	1	10/04/2016 13:17
Fluorene	ND	0.25	1	10/04/2016 13:17
Hexachlorobenzene	ND	0.25	1	10/04/2016 13:17
Hexachlorobutadiene	ND	0.25	1	10/04/2016 13:17
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 13:17
Hexachloroethane	ND	0.25	1	10/04/2016 13:17
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 13:17
Isophorone	ND	0.25	1	10/04/2016 13:17
2-Methylnaphthalene	ND	0.25	1	10/04/2016 13:17
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 13:17
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 13:17
Naphthalene	ND	0.25	1	10/04/2016 13:17
2-Nitroaniline	ND	1.3	1	10/04/2016 13:17
3-Nitroaniline	ND	1.3	1	10/04/2016 13:17
4-Nitroaniline	ND	1.3	1	10/04/2016 13:17
Nitrobenzene	ND	0.25	1	10/04/2016 13:17
2-Nitrophenol	ND	1.3	1	10/04/2016 13:17
4-Nitrophenol	ND	1.3	1	10/04/2016 13:17
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 13:17
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 13:17
Pentachlorophenol	ND	1.3	1	10/04/2016 13:17
Phenanthrene	ND	0.25	1	10/04/2016 13:17
Phenol	ND	0.25	1	10/04/2016 13:17
Pyrene	ND	0.25	1	10/04/2016 13:17
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 13:17
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 13:17
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 13:17

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 27.0-27.5	**1609D47-011A**	**Soil**	**09/28/2016 08:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	129	30-130		10/04/2016 13:17
Phenol-d5	112	30-130		10/04/2016 13:17
Nitrobenzene-d5	107	30-130		10/04/2016 13:17
2-Fluorobiphenyl	112	30-130		10/04/2016 13:17
2,4,6-Tribromophenol	99	16-130		10/04/2016 13:17
4-Terphenyl-d14	120	30-130		10/04/2016 13:17

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 13:45
Acenaphthylene	ND	0.25	1	10/04/2016 13:45
Acetochlor	ND	0.25	1	10/04/2016 13:45
Anthracene	ND	0.25	1	10/04/2016 13:45
Benzidine	ND	1.3	1	10/04/2016 13:45
Benzo (a) anthracene	ND	0.25	1	10/04/2016 13:45
Benzo (a) pyrene	ND	0.25	1	10/04/2016 13:45
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 13:45
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 13:45
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 13:45
Benzyl Alcohol	ND	1.3	1	10/04/2016 13:45
1,1-Biphenyl	ND	0.25	1	10/04/2016 13:45
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 13:45
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 13:45
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 13:45
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 13:45
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 13:45
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 13:45
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 13:45
4-Chloroaniline	ND	0.50	1	10/04/2016 13:45
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 13:45
2-Chloronaphthalene	ND	0.25	1	10/04/2016 13:45
2-Chlorophenol	ND	0.25	1	10/04/2016 13:45
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 13:45
Chrysene	ND	0.25	1	10/04/2016 13:45
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 13:45
Dibenzofuran	ND	0.25	1	10/04/2016 13:45
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 13:45
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 13:45
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 13:45
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 13:45
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 13:45
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 13:45
Diethyl Phthalate	ND	0.25	1	10/04/2016 13:45
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 13:45
Dimethyl Phthalate	ND	0.25	1	10/04/2016 13:45
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 13:45

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 13:45
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 13:45
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 13:45
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 13:45
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 13:45
Fluoranthene	ND	0.25	1	10/04/2016 13:45
Fluorene	ND	0.25	1	10/04/2016 13:45
Hexachlorobenzene	ND	0.25	1	10/04/2016 13:45
Hexachlorobutadiene	ND	0.25	1	10/04/2016 13:45
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 13:45
Hexachloroethane	ND	0.25	1	10/04/2016 13:45
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 13:45
Isophorone	ND	0.25	1	10/04/2016 13:45
2-Methylnaphthalene	ND	0.25	1	10/04/2016 13:45
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 13:45
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 13:45
Naphthalene	ND	0.25	1	10/04/2016 13:45
2-Nitroaniline	ND	1.3	1	10/04/2016 13:45
3-Nitroaniline	ND	1.3	1	10/04/2016 13:45
4-Nitroaniline	ND	1.3	1	10/04/2016 13:45
Nitrobenzene	ND	0.25	1	10/04/2016 13:45
2-Nitrophenol	ND	1.3	1	10/04/2016 13:45
4-Nitrophenol	ND	1.3	1	10/04/2016 13:45
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 13:45
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 13:45
Pentachlorophenol	ND	1.3	1	10/04/2016 13:45
Phenanthrene	ND	0.25	1	10/04/2016 13:45
Phenol	ND	0.25	1	10/04/2016 13:45
Pyrene	ND	0.25	1	10/04/2016 13:45
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 13:45
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 13:45
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 13:45

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 47.5-48.0	**1609D47-012A**	**Soil**	**09/28/2016 10:00**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	98	30-130		10/04/2016 13:45
Phenol-d5	87	30-130		10/04/2016 13:45
Nitrobenzene-d5	99	30-130		10/04/2016 13:45
2-Fluorobiphenyl	77	30-130		10/04/2016 13:45
2,4,6-Tribromophenol	50	16-130		10/04/2016 13:45
4-Terphenyl-d14	100	30-130		10/04/2016 13:45

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 14:13
Acenaphthylene	ND	0.25	1	10/04/2016 14:13
Acetochlor	ND	0.25	1	10/04/2016 14:13
Anthracene	ND	0.25	1	10/04/2016 14:13
Benzidine	ND	1.3	1	10/04/2016 14:13
Benzo (a) anthracene	ND	0.25	1	10/04/2016 14:13
Benzo (a) pyrene	ND	0.25	1	10/04/2016 14:13
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 14:13
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 14:13
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 14:13
Benzyl Alcohol	ND	1.3	1	10/04/2016 14:13
1,1-Biphenyl	ND	0.25	1	10/04/2016 14:13
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 14:13
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 14:13
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 14:13
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 14:13
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 14:13
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 14:13
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 14:13
4-Chloroaniline	ND	0.50	1	10/04/2016 14:13
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 14:13
2-Chloronaphthalene	ND	0.25	1	10/04/2016 14:13
2-Chlorophenol	ND	0.25	1	10/04/2016 14:13
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 14:13
Chrysene	ND	0.25	1	10/04/2016 14:13
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 14:13
Dibenzofuran	ND	0.25	1	10/04/2016 14:13
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 14:13
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 14:13
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 14:13
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 14:13
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 14:13
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 14:13
Diethyl Phthalate	ND	0.25	1	10/04/2016 14:13
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 14:13
Dimethyl Phthalate	ND	0.25	1	10/04/2016 14:13
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 14:13

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 14:13
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 14:13
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 14:13
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 14:13
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 14:13
Fluoranthene	ND	0.25	1	10/04/2016 14:13
Fluorene	ND	0.25	1	10/04/2016 14:13
Hexachlorobenzene	ND	0.25	1	10/04/2016 14:13
Hexachlorobutadiene	ND	0.25	1	10/04/2016 14:13
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 14:13
Hexachloroethane	ND	0.25	1	10/04/2016 14:13
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 14:13
Isophorone	ND	0.25	1	10/04/2016 14:13
2-Methylnaphthalene	ND	0.25	1	10/04/2016 14:13
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 14:13
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 14:13
Naphthalene	ND	0.25	1	10/04/2016 14:13
2-Nitroaniline	ND	1.3	1	10/04/2016 14:13
3-Nitroaniline	ND	1.3	1	10/04/2016 14:13
4-Nitroaniline	ND	1.3	1	10/04/2016 14:13
Nitrobenzene	ND	0.25	1	10/04/2016 14:13
2-Nitrophenol	ND	1.3	1	10/04/2016 14:13
4-Nitrophenol	ND	1.3	1	10/04/2016 14:13
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 14:13
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 14:13
Pentachlorophenol	ND	1.3	1	10/04/2016 14:13
Phenanthrene	ND	0.25	1	10/04/2016 14:13
Phenol	ND	0.25	1	10/04/2016 14:13
Pyrene	ND	0.25	1	10/04/2016 14:13
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 14:13
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 14:13
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 14:13

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 65.0	**1609D47-013A**	**Soil**	**09/28/2016 10:50**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	91	30-130		10/04/2016 14:13
Phenol-d5	89	30-130		10/04/2016 14:13
Nitrobenzene-d5	99	30-130		10/04/2016 14:13
2-Fluorobiphenyl	82	30-130		10/04/2016 14:13
2,4,6-Tribromophenol	57	16-130		10/04/2016 14:13
4-Terphenyl-d14	88	30-130		10/04/2016 14:13

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 14:41
Acenaphthylene	ND	0.25	1	10/04/2016 14:41
Acetochlor	ND	0.25	1	10/04/2016 14:41
Anthracene	ND	0.25	1	10/04/2016 14:41
Benzidine	ND	1.3	1	10/04/2016 14:41
Benzo (a) anthracene	ND	0.25	1	10/04/2016 14:41
Benzo (a) pyrene	ND	0.25	1	10/04/2016 14:41
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 14:41
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 14:41
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 14:41
Benzyl Alcohol	ND	1.3	1	10/04/2016 14:41
1,1-Biphenyl	ND	0.25	1	10/04/2016 14:41
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 14:41
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 14:41
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 14:41
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 14:41
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 14:41
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 14:41
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 14:41
4-Chloroaniline	ND	0.50	1	10/04/2016 14:41
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 14:41
2-Chloronaphthalene	ND	0.25	1	10/04/2016 14:41
2-Chlorophenol	ND	0.25	1	10/04/2016 14:41
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 14:41
Chrysene	ND	0.25	1	10/04/2016 14:41
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 14:41
Dibenzofuran	ND	0.25	1	10/04/2016 14:41
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 14:41
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 14:41
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 14:41
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 14:41
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 14:41
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 14:41
Diethyl Phthalate	ND	0.25	1	10/04/2016 14:41
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 14:41
Dimethyl Phthalate	ND	0.25	1	10/04/2016 14:41
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 14:41

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 14:41
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 14:41
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 14:41
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 14:41
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 14:41
Fluoranthene	ND	0.25	1	10/04/2016 14:41
Fluorene	ND	0.25	1	10/04/2016 14:41
Hexachlorobenzene	ND	0.25	1	10/04/2016 14:41
Hexachlorobutadiene	ND	0.25	1	10/04/2016 14:41
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 14:41
Hexachloroethane	ND	0.25	1	10/04/2016 14:41
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 14:41
Isophorone	ND	0.25	1	10/04/2016 14:41
2-Methylnaphthalene	ND	0.25	1	10/04/2016 14:41
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 14:41
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 14:41
Naphthalene	ND	0.25	1	10/04/2016 14:41
2-Nitroaniline	ND	1.3	1	10/04/2016 14:41
3-Nitroaniline	ND	1.3	1	10/04/2016 14:41
4-Nitroaniline	ND	1.3	1	10/04/2016 14:41
Nitrobenzene	ND	0.25	1	10/04/2016 14:41
2-Nitrophenol	ND	1.3	1	10/04/2016 14:41
4-Nitrophenol	ND	1.3	1	10/04/2016 14:41
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 14:41
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 14:41
Pentachlorophenol	ND	1.3	1	10/04/2016 14:41
Phenanthrene	ND	0.25	1	10/04/2016 14:41
Phenol	ND	0.25	1	10/04/2016 14:41
Pyrene	ND	0.25	1	10/04/2016 14:41
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 14:41
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 14:41
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 14:41

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 10/1/16-10/3/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 84.5-85.0	**1609D47-014A**	**Soil**	**09/28/2016 12:15**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	115	30-130		10/04/2016 14:41
Phenol-d5	115	30-130		10/04/2016 14:41
Nitrobenzene-d5	104	30-130		10/04/2016 14:41
2-Fluorobiphenyl	106	30-130		10/04/2016 14:41
2,4,6-Tribromophenol	71	16-130		10/04/2016 14:41
4-Terphenyl-d14	109	30-130		10/04/2016 14:41

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 15:09
Acenaphthylene	ND	0.25	1	10/04/2016 15:09
Acetochlor	ND	0.25	1	10/04/2016 15:09
Anthracene	ND	0.25	1	10/04/2016 15:09
Benzidine	ND	1.3	1	10/04/2016 15:09
Benzo (a) anthracene	ND	0.25	1	10/04/2016 15:09
Benzo (a) pyrene	ND	0.25	1	10/04/2016 15:09
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 15:09
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 15:09
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 15:09
Benzyl Alcohol	ND	1.3	1	10/04/2016 15:09
1,1-Biphenyl	ND	0.25	1	10/04/2016 15:09
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 15:09
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 15:09
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 15:09
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 15:09
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 15:09
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 15:09
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 15:09
4-Chloroaniline	ND	0.50	1	10/04/2016 15:09
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 15:09
2-Chloronaphthalene	ND	0.25	1	10/04/2016 15:09
2-Chlorophenol	ND	0.25	1	10/04/2016 15:09
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 15:09
Chrysene	ND	0.25	1	10/04/2016 15:09
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 15:09
Dibenzofuran	ND	0.25	1	10/04/2016 15:09
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 15:09
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 15:09
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 15:09
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 15:09
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 15:09
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 15:09
Diethyl Phthalate	ND	0.25	1	10/04/2016 15:09
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 15:09
Dimethyl Phthalate	ND	0.25	1	10/04/2016 15:09
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 15:09

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 15:09
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 15:09
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 15:09
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 15:09
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 15:09
Fluoranthene	ND	0.25	1	10/04/2016 15:09
Fluorene	ND	0.25	1	10/04/2016 15:09
Hexachlorobenzene	ND	0.25	1	10/04/2016 15:09
Hexachlorobutadiene	ND	0.25	1	10/04/2016 15:09
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 15:09
Hexachloroethane	ND	0.25	1	10/04/2016 15:09
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 15:09
Isophorone	ND	0.25	1	10/04/2016 15:09
2-Methylnaphthalene	ND	0.25	1	10/04/2016 15:09
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 15:09
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 15:09
Naphthalene	ND	0.25	1	10/04/2016 15:09
2-Nitroaniline	ND	1.3	1	10/04/2016 15:09
3-Nitroaniline	ND	1.3	1	10/04/2016 15:09
4-Nitroaniline	ND	1.3	1	10/04/2016 15:09
Nitrobenzene	ND	0.25	1	10/04/2016 15:09
2-Nitrophenol	ND	1.3	1	10/04/2016 15:09
4-Nitrophenol	ND	1.3	1	10/04/2016 15:09
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 15:09
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 15:09
Pentachlorophenol	ND	1.3	1	10/04/2016 15:09
Phenanthrene	ND	0.25	1	10/04/2016 15:09
Phenol	ND	0.25	1	10/04/2016 15:09
Pyrene	ND	0.25	1	10/04/2016 15:09
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 15:09
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 15:09
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 15:09

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 94.5-95.0	**1609D47-015A**	**Soil**	**09/28/2016 12:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	102	30-130		10/04/2016 15:09
Phenol-d5	98	30-130		10/04/2016 15:09
Nitrobenzene-d5	92	30-130		10/04/2016 15:09
2-Fluorobiphenyl	79	30-130		10/04/2016 15:09
2,4,6-Tribromophenol	65	16-130		10/04/2016 15:09
4-Terphenyl-d14	105	30-130		10/04/2016 15:09

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 17:01
Acenaphthylene	ND	0.25	1	10/04/2016 17:01
Acetochlor	ND	0.25	1	10/04/2016 17:01
Anthracene	ND	0.25	1	10/04/2016 17:01
Benzidine	ND	1.3	1	10/04/2016 17:01
Benzo (a) anthracene	ND	0.25	1	10/04/2016 17:01
Benzo (a) pyrene	ND	0.25	1	10/04/2016 17:01
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 17:01
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 17:01
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 17:01
Benzyl Alcohol	ND	1.3	1	10/04/2016 17:01
1,1-Biphenyl	ND	0.25	1	10/04/2016 17:01
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 17:01
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 17:01
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 17:01
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 17:01
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 17:01
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:01
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 17:01
4-Chloroaniline	ND	0.50	1	10/04/2016 17:01
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 17:01
2-Chloronaphthalene	ND	0.25	1	10/04/2016 17:01
2-Chlorophenol	ND	0.25	1	10/04/2016 17:01
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:01
Chrysene	ND	0.25	1	10/04/2016 17:01
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 17:01
Dibenzofuran	ND	0.25	1	10/04/2016 17:01
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 17:01
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 17:01
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 17:01
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 17:01
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 17:01
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 17:01
Diethyl Phthalate	ND	0.25	1	10/04/2016 17:01
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 17:01
Dimethyl Phthalate	ND	0.25	1	10/04/2016 17:01
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 17:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 17:01
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 17:01
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 17:01
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 17:01
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 17:01
Fluoranthene	ND	0.25	1	10/04/2016 17:01
Fluorene	ND	0.25	1	10/04/2016 17:01
Hexachlorobenzene	ND	0.25	1	10/04/2016 17:01
Hexachlorobutadiene	ND	0.25	1	10/04/2016 17:01
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 17:01
Hexachloroethane	ND	0.25	1	10/04/2016 17:01
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 17:01
Isophorone	ND	0.25	1	10/04/2016 17:01
2-Methylnaphthalene	ND	0.25	1	10/04/2016 17:01
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 17:01
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 17:01
Naphthalene	ND	0.25	1	10/04/2016 17:01
2-Nitroaniline	ND	1.3	1	10/04/2016 17:01
3-Nitroaniline	ND	1.3	1	10/04/2016 17:01
4-Nitroaniline	ND	1.3	1	10/04/2016 17:01
Nitrobenzene	ND	0.25	1	10/04/2016 17:01
2-Nitrophenol	ND	1.3	1	10/04/2016 17:01
4-Nitrophenol	ND	1.3	1	10/04/2016 17:01
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 17:01
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 17:01
Pentachlorophenol	ND	1.3	1	10/04/2016 17:01
Phenanthrene	ND	0.25	1	10/04/2016 17:01
Phenol	ND	0.25	1	10/04/2016 17:01
Pyrene	ND	0.25	1	10/04/2016 17:01
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 17:01
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 17:01
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 17:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 99.5-110.0	**1609D47-016A**	**Soil**	**09/28/2016 13:30**	**GC21**	**127440**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	118	30-130		10/04/2016 17:01
Phenol-d5	111	30-130		10/04/2016 17:01
Nitrobenzene-d5	104	30-130		10/04/2016 17:01
2-Fluorobiphenyl	85	30-130		10/04/2016 17:01
2,4,6-Tribromophenol	60	16-130		10/04/2016 17:01
4-Terphenyl-d14	73	30-130		10/04/2016 17:01

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 17:29
Acenaphthylene	ND	0.25	1	10/04/2016 17:29
Acetochlor	ND	0.25	1	10/04/2016 17:29
Anthracene	ND	0.25	1	10/04/2016 17:29
Benzidine	ND	1.3	1	10/04/2016 17:29
Benzo (a) anthracene	ND	0.25	1	10/04/2016 17:29
Benzo (a) pyrene	ND	0.25	1	10/04/2016 17:29
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 17:29
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 17:29
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 17:29
Benzyl Alcohol	ND	1.3	1	10/04/2016 17:29
1,1-Biphenyl	ND	0.25	1	10/04/2016 17:29
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 17:29
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 17:29
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 17:29
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 17:29
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 17:29
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:29
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 17:29
4-Chloroaniline	ND	0.50	1	10/04/2016 17:29
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 17:29
2-Chloronaphthalene	ND	0.25	1	10/04/2016 17:29
2-Chlorophenol	ND	0.25	1	10/04/2016 17:29
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:29
Chrysene	ND	0.25	1	10/04/2016 17:29
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 17:29
Dibenzofuran	ND	0.25	1	10/04/2016 17:29
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 17:29
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 17:29
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 17:29
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 17:29
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 17:29
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 17:29
Diethyl Phthalate	ND	0.25	1	10/04/2016 17:29
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 17:29
Dimethyl Phthalate	ND	0.25	1	10/04/2016 17:29
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 17:29

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 17:29
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 17:29
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 17:29
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 17:29
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 17:29
Fluoranthene	ND	0.25	1	10/04/2016 17:29
Fluorene	ND	0.25	1	10/04/2016 17:29
Hexachlorobenzene	ND	0.25	1	10/04/2016 17:29
Hexachlorobutadiene	ND	0.25	1	10/04/2016 17:29
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 17:29
Hexachloroethane	ND	0.25	1	10/04/2016 17:29
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 17:29
Isophorone	ND	0.25	1	10/04/2016 17:29
2-Methylnaphthalene	ND	0.25	1	10/04/2016 17:29
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 17:29
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 17:29
Naphthalene	ND	0.25	1	10/04/2016 17:29
2-Nitroaniline	ND	1.3	1	10/04/2016 17:29
3-Nitroaniline	ND	1.3	1	10/04/2016 17:29
4-Nitroaniline	ND	1.3	1	10/04/2016 17:29
Nitrobenzene	ND	0.25	1	10/04/2016 17:29
2-Nitrophenol	ND	1.3	1	10/04/2016 17:29
4-Nitrophenol	ND	1.3	1	10/04/2016 17:29
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 17:29
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 17:29
Pentachlorophenol	ND	1.3	1	10/04/2016 17:29
Phenanthrene	ND	0.25	1	10/04/2016 17:29
Phenol	ND	0.25	1	10/04/2016 17:29
Pyrene	ND	0.25	1	10/04/2016 17:29
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 17:29
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 17:29
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 17:29

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 124.5-125.0	**1609D47-017A**	**Soil**	**09/28/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	102	30-130		10/04/2016 17:29
Phenol-d5	93	30-130		10/04/2016 17:29
Nitrobenzene-d5	90	30-130		10/04/2016 17:29
2-Fluorobiphenyl	90	30-130		10/04/2016 17:29
2,4,6-Tribromophenol	68	16-130		10/04/2016 17:29
4-Terphenyl-d14	94	30-130		10/04/2016 17:29

Analyst(s): REB

(Cont.)

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	**1609D47-018A**	**Soil**	**09/28/2016 16:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 17:57
Acenaphthylene	ND	0.25	1	10/04/2016 17:57
Acetochlor	ND	0.25	1	10/04/2016 17:57
Anthracene	ND	0.25	1	10/04/2016 17:57
Benzidine	ND	1.3	1	10/04/2016 17:57
Benzo (a) anthracene	ND	0.25	1	10/04/2016 17:57
Benzo (a) pyrene	ND	0.25	1	10/04/2016 17:57
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 17:57
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 17:57
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 17:57
Benzyl Alcohol	ND	1.3	1	10/04/2016 17:57
1,1-Biphenyl	ND	0.25	1	10/04/2016 17:57
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 17:57
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 17:57
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 17:57
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 17:57
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 17:57
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:57
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 17:57
4-Chloroaniline	ND	0.50	1	10/04/2016 17:57
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 17:57
2-Chloronaphthalene	ND	0.25	1	10/04/2016 17:57
2-Chlorophenol	ND	0.25	1	10/04/2016 17:57
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:57
Chrysene	ND	0.25	1	10/04/2016 17:57
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 17:57
Dibenzofuran	ND	0.25	1	10/04/2016 17:57
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 17:57
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 17:57
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 17:57
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 17:57
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 17:57
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 17:57
Diethyl Phthalate	ND	0.25	1	10/04/2016 17:57
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 17:57
Dimethyl Phthalate	ND	0.25	1	10/04/2016 17:57
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 17:57

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	**1609D47-018A**	**Soil**	**09/28/2016 16:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 17:57
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 17:57
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 17:57
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 17:57
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 17:57
Fluoranthene	ND	0.25	1	10/04/2016 17:57
Fluorene	ND	0.25	1	10/04/2016 17:57
Hexachlorobenzene	ND	0.25	1	10/04/2016 17:57
Hexachlorobutadiene	ND	0.25	1	10/04/2016 17:57
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 17:57
Hexachloroethane	ND	0.25	1	10/04/2016 17:57
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 17:57
Isophorone	ND	0.25	1	10/04/2016 17:57
2-Methylnaphthalene	ND	0.25	1	10/04/2016 17:57
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 17:57
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 17:57
Naphthalene	ND	0.25	1	10/04/2016 17:57
2-Nitroaniline	ND	1.3	1	10/04/2016 17:57
3-Nitroaniline	ND	1.3	1	10/04/2016 17:57
4-Nitroaniline	ND	1.3	1	10/04/2016 17:57
Nitrobenzene	ND	0.25	1	10/04/2016 17:57
2-Nitrophenol	ND	1.3	1	10/04/2016 17:57
4-Nitrophenol	ND	1.3	1	10/04/2016 17:57
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 17:57
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 17:57
Pentachlorophenol	ND	1.3	1	10/04/2016 17:57
Phenanthrene	ND	0.25	1	10/04/2016 17:57
Phenol	ND	0.25	1	10/04/2016 17:57
Pyrene	ND	0.25	1	10/04/2016 17:57
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 17:57
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 17:57
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 17:57

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW3550B
Date Prepared:	10/1/16-10/3/16	**Analytical Method:**	SW8270C
Project:	SCVWD-IPR	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 155.0-155.5	**1609D47-018A**	**Soil**	**09/28/2016 16:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	96	30-130		10/04/2016 17:57
Phenol-d5	93	30-130		10/04/2016 17:57
Nitrobenzene-d5	90	30-130		10/04/2016 17:57
2-Fluorobiphenyl	83	30-130		10/04/2016 17:57
2,4,6-Tribromophenol	58	16-130		10/04/2016 17:57
4-Terphenyl-d14	90	30-130		10/04/2016 17:57

Analyst(s): REB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 13:59

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:54

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:03

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:57

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:07

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:00

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:11

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:03

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:15

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:06

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:43

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:09

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:51

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:15

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E350.1
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WC_SKALAR**	**130116**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 14:55

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:18

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.7**	H	1.00	1	11/22/2016 14:23
Carbonate	ND	H	1.00	1	11/22/2016 14:23
Bicarbonate	**32.7**	H	1.00	1	11/22/2016 14:23
Hydroxide	ND	H	1.00	1	11/22/2016 14:23

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.4**	H	1.00	1	11/22/2016 14:26
Carbonate	ND	H	1.00	1	11/22/2016 14:26
Bicarbonate	**39.4**	H	1.00	1	11/22/2016 14:26
Hydroxide	ND	H	1.00	1	11/22/2016 14:26

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.2**	H	1.00	1	11/22/2016 14:28
Carbonate	ND	H	1.00	1	11/22/2016 14:28
Bicarbonate	**32.2**	H	1.00	1	11/22/2016 14:28
Hydroxide	ND	H	1.00	1	11/22/2016 14:28

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.5**	H	1.00	1	11/22/2016 14:31
Carbonate	ND	H	1.00	1	11/22/2016 14:31
Bicarbonate	**39.5**	H	1.00	1	11/22/2016 14:31
Hydroxide	ND	H	1.00	1	11/22/2016 14:31

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**31.7**	H	1.00	1	11/22/2016 14:33
Carbonate	ND	H	1.00	1	11/22/2016 14:33
Bicarbonate	**31.7**	H	1.00	1	11/22/2016 14:33
Hydroxide	ND	H	1.00	1	11/22/2016 14:33

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**38.3**	H	1.00	1	11/22/2016 14:36
Carbonate	ND	H	1.00	1	11/22/2016 14:36
Bicarbonate	**38.3**	H	1.00	1	11/22/2016 14:36
Hydroxide	ND	H	1.00	1	11/22/2016 14:36

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	1609D47-004C	Soil	09/28/2016 10:50	Titrino	130218

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**33.3**	H	1.00	1	11/22/2016 14:38
Carbonate	ND	H	1.00	1	11/22/2016 14:38
Bicarbonate	**33.3**	H	1.00	1	11/22/2016 14:38
Hydroxide	ND	H	1.00	1	11/22/2016 14:38

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	1609D47-004D	Soil	09/28/2016 10:50	Titrino	130218

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.4**	H	1.00	1	11/22/2016 14:41
Carbonate	ND	H	1.00	1	11/22/2016 14:41
Bicarbonate	**39.4**	H	1.00	1	11/22/2016 14:41
Hydroxide	ND	H	1.00	1	11/22/2016 14:41

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	1609D47-005C	Soil	09/28/2016 12:15	Titrino	130218

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.6**	H	1.00	1	11/22/2016 14:43
Carbonate	ND	H	1.00	1	11/22/2016 14:43
Bicarbonate	**32.6**	H	1.00	1	11/22/2016 14:43
Hydroxide	ND	H	1.00	1	11/22/2016 14:43

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.5**	H	1.00	1	11/22/2016 14:46
Carbonate	ND	H	1.00	1	11/22/2016 14:46
Bicarbonate	**39.5**	H	1.00	1	11/22/2016 14:46
Hydroxide	ND	H	1.00	1	11/22/2016 14:46

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**30.5**	H	1.00	1	11/22/2016 14:52
Carbonate	ND	H	1.00	1	11/22/2016 14:52
Bicarbonate	**30.5**	H	1.00	1	11/22/2016 14:52
Hydroxide	ND	H	1.00	1	11/22/2016 14:52

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**37.4**	H	1.00	1	11/22/2016 14:54
Carbonate	ND	H	1.00	1	11/22/2016 14:54
Bicarbonate	**37.4**	H	1.00	1	11/22/2016 14:54
Hydroxide	ND	H	1.00	1	11/22/2016 14:54

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**34.1**	H	1.00	1	11/22/2016 14:57
Carbonate	ND	H	1.00	1	11/22/2016 14:57
Bicarbonate	**34.1**	H	1.00	1	11/22/2016 14:57
Hydroxide	ND	H	1.00	1	11/22/2016 14:57

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**37.3**	H	1.00	1	11/22/2016 14:59
Carbonate	ND	H	1.00	1	11/22/2016 14:59
Bicarbonate	**37.3**	H	1.00	1	11/22/2016 14:59
Hydroxide	ND	H	1.00	1	11/22/2016 14:59

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.2**	H	1.00	1	11/22/2016 15:02
Carbonate	ND	H	1.00	1	11/22/2016 15:02
Bicarbonate	**32.2**	H	1.00	1	11/22/2016 15:02
Hydroxide	ND	H	1.00	1	11/22/2016 15:02

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWD-IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**38.3**	H	1.00	1	11/22/2016 15:04
Carbonate	ND	H	1.00	1	11/22/2016 15:04
Bicarbonate	**38.3**	H	1.00	1	11/22/2016 15:04
Hydroxide	ND	H	1.00	1	11/22/2016 15:04

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.1**	H	1.00	1	11/22/2016 15:07
Carbonate	ND	H	1.00	1	11/22/2016 15:07
Bicarbonate	**32.1**	H	1.00	1	11/22/2016 15:07
Hydroxide	ND	H	1.00	1	11/22/2016 15:07

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.9**	H	1.00	1	11/22/2016 15:10
Carbonate	ND	H	1.00	1	11/22/2016 15:10
Bicarbonate	**39.9**	H	1.00	1	11/22/2016 15:10
Hydroxide	ND	H	1.00	1	11/22/2016 15:10

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:46

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:53

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:56

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**SPECTROPHOTOMETER**	**130424**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:00

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	1609D47-003C	Soil	09/28/2016 10:00	SPECTROPHOTOMETER	130425

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:03

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	1609D47-003D	Soil	09/28/2016 10:00	SPECTROPHOTOMETER	130425

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:04

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	1609D47-004C	Soil	09/28/2016 10:50	SPECTROPHOTOMETER	130425

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:07

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	1609D47-004D	Soil	09/28/2016 10:50	SPECTROPHOTOMETER	130425

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:08

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**SPECTROPHOTOMETER**	**130425**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:12

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**SPECTROPHOTOMETER**	**130425**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 17:13

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**SPECTROPHOTOMETER**	**130425**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	ND	0.040	1	11/28/2016 16:25

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**SPECTROPHOTOMETER**	**130425**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 18:59

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	1609D47-007C	Soil	09/28/2016 13:30	SPECTROPHOTOMETER	130425

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 19:02

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	1609D47-007D	Soil	09/28/2016 13:30	SPECTROPHOTOMETER	130425

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 19:03

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	1609D47-008C	Soil	09/28/2016 14:00	SPECTROPHOTOMETER	130426

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 17:36

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	1609D47-008D	Soil	09/28/2016 14:00	SPECTROPHOTOMETER	130426

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 17:37

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 17:46

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND	H	0.040	1	11/28/2016 17:49

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130174**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.66 @ 22.4°C**		1.00	1	11/21/2016 19:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130174**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.73 @ 22.4°C**		1.00	1	11/21/2016 19:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130174**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.80 @ 22.4°C**		1.00	1	11/21/2016 19:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130174**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.80 @ 22.3°C**		1.00	1	11/21/2016 19:35

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.79 @ 22.4°C**		1.00	1	11/21/2016 19:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.61 @ 22.3°C**		1.00	1	11/21/2016 19:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.73 @ 22.3°C**		1.00	1	11/21/2016 19:55

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.79 @ 22.3°C**		1.00	1	11/21/2016 20:00

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.66 @ 22.3°C**		1.00	1	11/21/2016 20:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.82 @ 22.4°C**		1.00	1	11/21/2016 20:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.66 @ 22.3°C**		1.00	1	11/21/2016 20:15

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.73 @ 22.3°C**		1.00	1	11/21/2016 20:20

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.70 @ 22.3°C**		1.00	1	11/21/2016 20:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130175**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.64 @ 22.2°C**		1.00	1	11/21/2016 20:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.55 @ 22.0°C**		1.00	1	11/21/2016 19:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.64 @ 22.2°C**		1.00	1	11/21/2016 19:10

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWD-IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.72 @ 22.2°C**		1.00	1	11/21/2016 19:15

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.73 @ 22.2°C**		1.00	1	11/21/2016 19:20

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @17.0 Ft HH	**1609D47-001B**	**Soil**	**09/28/2016 08:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9900**	200	1	10/21/2016 18:44
Arsenic	ND	2.0	1	10/21/2016 18:44
Calcium	**3500**	400	1	10/21/2016 18:44
Chromium	**30**	2.0	1	10/21/2016 18:44
Copper	**21**	2.0	1	10/21/2016 18:44
Iron	**20,000**	80	1	10/21/2016 18:44
Lead	**4.6**	2.0	1	10/21/2016 18:44
Magnesium	**8100**	80	1	10/21/2016 18:44
Manganese	**340**	20	1	10/21/2016 18:44
Mercury	ND	0.20	1	10/21/2016 18:44
Selenium	ND	2.0	1	10/21/2016 18:44
Uranium	ND	2.0	1	10/21/2016 18:44
Zinc	**43**	20	1	10/21/2016 18:44

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @23.0 Ft HH	**1609D47-002B**	**Soil**	**09/28/2016 08:20**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9100**	200	1	10/21/2016 18:51
Arsenic	ND	2.0	1	10/21/2016 18:51
Calcium	**2900**	400	1	10/21/2016 18:51
Chromium	**38**	2.0	1	10/21/2016 18:51
Copper	**19**	2.0	1	10/21/2016 18:51
Iron	**19,000**	80	1	10/21/2016 18:51
Lead	**4.7**	2.0	1	10/21/2016 18:51
Magnesium	**8100**	80	1	10/21/2016 18:51
Manganese	**380**	20	1	10/21/2016 18:51
Mercury	ND	0.20	1	10/21/2016 18:51
Selenium	ND	2.0	1	10/21/2016 18:51
Uranium	ND	2.0	1	10/21/2016 18:51
Zinc	**40**	20	1	10/21/2016 18:51

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 50.0 Ft HH	**1609D47-003B**	**Soil**	**09/28/2016 10:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9400**	200	1	10/21/2016 18:57
Arsenic	ND	2.0	1	10/21/2016 18:57
Calcium	**3500**	400	1	10/21/2016 18:57
Chromium	**31**	2.0	1	10/21/2016 18:57
Copper	**18**	2.0	1	10/21/2016 18:57
Iron	**19,000**	80	1	10/21/2016 18:57
Lead	**5.0**	2.0	1	10/21/2016 18:57
Magnesium	**6200**	80	1	10/21/2016 18:57
Manganese	**410**	20	1	10/21/2016 18:57
Mercury	ND	0.20	1	10/21/2016 18:57
Selenium	ND	2.0	1	10/21/2016 18:57
Uranium	ND	2.0	1	10/21/2016 18:57
Zinc	**40**	20	1	10/21/2016 18:57

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @65.0 Ft HH	**1609D47-004B**	**Soil**	**09/28/2016 10:50**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9900**	200	1	10/21/2016 19:03
Arsenic	ND	2.0	1	10/21/2016 19:03
Calcium	**3900**	400	1	10/21/2016 19:03
Chromium	**28**	2.0	1	10/21/2016 19:03
Copper	**18**	2.0	1	10/21/2016 19:03
Iron	**19,000**	80	1	10/21/2016 19:03
Lead	**4.6**	2.0	1	10/21/2016 19:03
Magnesium	**6500**	80	1	10/21/2016 19:03
Manganese	**390**	20	1	10/21/2016 19:03
Mercury	ND	0.20	1	10/21/2016 19:03
Selenium	ND	2.0	1	10/21/2016 19:03
Uranium	ND	2.0	1	10/21/2016 19:03
Zinc	**41**	20	1	10/21/2016 19:03

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 85.0 Ft HH	**1609D47-005B**	**Soil**	**09/28/2016 12:15**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 19:10
Arsenic	ND	2.0	1	10/21/2016 19:10
Calcium	**4100**	400	1	10/21/2016 19:10
Chromium	**31**	2.0	1	10/21/2016 19:10
Copper	**23**	2.0	1	10/21/2016 19:10
Iron	**21,000**	80	1	10/21/2016 19:10
Lead	**5.8**	2.0	1	10/21/2016 19:10
Magnesium	**7700**	80	1	10/21/2016 19:10
Manganese	**410**	20	1	10/21/2016 19:10
Mercury	ND	0.20	1	10/21/2016 19:10
Selenium	ND	2.0	1	10/21/2016 19:10
Uranium	ND	2.0	1	10/21/2016 19:10
Zinc	**46**	20	1	10/21/2016 19:10

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 95.0 Ft HH	**1609D47-006B**	**Soil**	**09/28/2016 12:30**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 19:16
Arsenic	ND	2.0	1	10/21/2016 19:16
Calcium	**3600**	400	1	10/21/2016 19:16
Chromium	**34**	2.0	1	10/21/2016 19:16
Copper	**21**	2.0	1	10/21/2016 19:16
Iron	**21,000**	80	1	10/21/2016 19:16
Lead	**5.6**	2.0	1	10/21/2016 19:16
Magnesium	**6700**	80	1	10/21/2016 19:16
Manganese	**570**	20	1	10/21/2016 19:16
Mercury	ND	0.20	1	10/21/2016 19:16
Selenium	ND	2.0	1	10/21/2016 19:16
Uranium	ND	2.0	1	10/21/2016 19:16
Zinc	**44**	20	1	10/21/2016 19:16

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 110.0 Ft HH	**1609D47-007B**	**Soil**	**09/28/2016 13:30**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**9800**	200	1	10/21/2016 19:22
Arsenic	ND	2.0	1	10/21/2016 19:22
Calcium	**3500**	400	1	10/21/2016 19:22
Chromium	**57**	2.0	1	10/21/2016 19:22
Copper	**20**	2.0	1	10/21/2016 19:22
Iron	**21,000**	80	1	10/21/2016 19:22
Lead	**5.0**	2.0	1	10/21/2016 19:22
Magnesium	**6600**	80	1	10/21/2016 19:22
Manganese	**550**	20	1	10/21/2016 19:22
Mercury	ND	0.20	1	10/21/2016 19:22
Selenium	ND	2.0	1	10/21/2016 19:22
Uranium	ND	2.0	1	10/21/2016 19:22
Zinc	**41**	20	1	10/21/2016 19:22

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 125 Ft HH	**1609D47-008B**	**Soil**	**09/28/2016 14:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**10,000**	200	1	10/21/2016 19:29
Arsenic	ND	2.0	1	10/21/2016 19:29
Calcium	**3700**	400	1	10/21/2016 19:29
Chromium	**31**	2.0	1	10/21/2016 19:29
Copper	**22**	2.0	1	10/21/2016 19:29
Iron	**21,000**	80	1	10/21/2016 19:29
Lead	**4.7**	2.0	1	10/21/2016 19:29
Magnesium	**7500**	80	1	10/21/2016 19:29
Manganese	**500**	20	1	10/21/2016 19:29
Mercury	ND	0.20	1	10/21/2016 19:29
Selenium	ND	2.0	1	10/21/2016 19:29
Uranium	ND	2.0	1	10/21/2016 19:29
Zinc	**48**	20	1	10/21/2016 19:29

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 155 Ft HH	**1609D47-009B**	**Soil**	**09/28/2016 16:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**10,000**	200	1	10/21/2016 19:35
Arsenic	ND	2.0	1	10/21/2016 19:35
Calcium	**4100**	400	1	10/21/2016 19:35
Chromium	**38**	2.0	1	10/21/2016 19:35
Copper	**21**	2.0	1	10/21/2016 19:35
Iron	**19,000**	80	1	10/21/2016 19:35
Lead	**3.8**	2.0	1	10/21/2016 19:35
Magnesium	**9700**	80	1	10/21/2016 19:35
Manganese	**430**	20	1	10/21/2016 19:35
Mercury	ND	0.20	1	10/21/2016 19:35
Selenium	ND	2.0	1	10/21/2016 19:35
Uranium	ND	2.0	1	10/21/2016 19:35
Zinc	**41**	20	1	10/21/2016 19:35

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:41
Antimony	ND		0.00050	1	11/30/2016 13:41
Arsenic	**0.00060**		0.00050	1	11/30/2016 13:41
Barium	**0.011**		0.0050	1	11/30/2016 13:41
Beryllium	ND		0.00050	1	11/30/2016 13:41
Cadmium	ND		0.00025	1	11/30/2016 13:41
Calcium	**9.4**	B	0.10	1	11/30/2016 13:41
Chromium	**0.00071**		0.00050	1	11/30/2016 13:41
Cobalt	ND		0.00050	1	11/30/2016 13:41
Copper	ND		0.00050	1	11/30/2016 13:41
Iron	**0.026**		0.020	1	11/30/2016 13:41
Lead	ND		0.00050	1	11/30/2016 13:41
Lithium	ND		0.0050	1	11/30/2016 13:41
Magnesium	**4.2**	B	0.020	1	11/30/2016 13:41
Manganese	ND		0.020	1	11/30/2016 13:41
Mercury	ND		0.000050	1	11/30/2016 13:41
Molybdenum	**0.0027**		0.00050	1	11/30/2016 13:41
Nickel	ND		0.00050	1	11/30/2016 13:41
Potassium	**1.8**	B	0.020	1	11/30/2016 13:41
Selenium	ND		0.00050	1	11/30/2016 13:41
Silver	ND		0.00050	1	11/30/2016 13:41
Sodium	**27**	B	0.10	1	11/30/2016 13:41
Strontium	**0.072**		0.020	1	11/30/2016 13:41
Thallium	ND		0.00050	1	11/30/2016 13:41
Uranium	ND		0.00050	1	11/30/2016 13:41
Vanadium	**0.0018**		0.00050	1	11/30/2016 13:41
Zinc	ND		0.015	1	11/30/2016 13:41

Analyst(s): MIG

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 11/22/16-11/23/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:47
Antimony	ND		0.00050	1	11/30/2016 13:47
Arsenic	**0.00058**		0.00050	1	11/30/2016 13:47
Barium	**0.010**		0.0050	1	11/30/2016 13:47
Beryllium	ND		0.00050	1	11/30/2016 13:47
Cadmium	ND		0.00025	1	11/30/2016 13:47
Calcium	**9.5**	B	0.10	1	11/30/2016 13:47
Chromium	**0.00065**		0.00050	1	11/30/2016 13:47
Cobalt	ND		0.00050	1	11/30/2016 13:47
Copper	ND		0.00050	1	11/30/2016 13:47
Iron	ND		0.020	1	11/30/2016 13:47
Lead	ND		0.00050	1	11/30/2016 13:47
Lithium	ND		0.0050	1	11/30/2016 13:47
Magnesium	**4.2**	B	0.020	1	11/30/2016 13:47
Manganese	ND		0.020	1	11/30/2016 13:47
Mercury	ND		0.000050	1	11/30/2016 13:47
Molybdenum	**0.0032**		0.00050	1	11/30/2016 13:47
Nickel	ND		0.00050	1	11/30/2016 13:47
Potassium	**1.8**	B	0.020	1	11/30/2016 13:47
Selenium	ND		0.00050	1	11/30/2016 13:47
Silver	ND		0.00050	1	11/30/2016 13:47
Sodium	**29**	B	0.10	1	11/30/2016 13:47
Strontium	**0.071**		0.020	1	11/30/2016 13:47
Thallium	ND		0.00050	1	11/30/2016 13:47
Uranium	ND		0.00050	1	11/30/2016 13:47
Vanadium	**0.0019**		0.00050	1	11/30/2016 13:47
Zinc	ND		0.015	1	11/30/2016 13:47

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 13:54
Antimony	ND		0.00050	1	11/30/2016 13:54
Arsenic	ND		0.00050	1	11/30/2016 13:54
Barium	**0.013**		0.0050	1	11/30/2016 13:54
Beryllium	ND		0.00050	1	11/30/2016 13:54
Cadmium	ND		0.00025	1	11/30/2016 13:54
Calcium	**11**	B	0.10	1	11/30/2016 13:54
Chromium	**0.00070**		0.00050	1	11/30/2016 13:54
Cobalt	ND		0.00050	1	11/30/2016 13:54
Copper	ND		0.00050	1	11/30/2016 13:54
Iron	ND		0.020	1	11/30/2016 13:54
Lead	ND		0.00050	1	11/30/2016 13:54
Lithium	ND		0.0050	1	11/30/2016 13:54
Magnesium	**4.7**	B	0.020	1	11/30/2016 13:54
Manganese	**0.023**		0.020	1	11/30/2016 13:54
Mercury	ND		0.000050	1	11/30/2016 13:54
Molybdenum	**0.0080**		0.00050	1	11/30/2016 13:54
Nickel	**0.00053**		0.00050	1	11/30/2016 13:54
Potassium	**2.3**	B	0.020	1	11/30/2016 13:54
Selenium	ND		0.00050	1	11/30/2016 13:54
Silver	ND		0.00050	1	11/30/2016 13:54
Sodium	**24**	B	0.10	1	11/30/2016 13:54
Strontium	**0.080**		0.020	1	11/30/2016 13:54
Thallium	ND		0.00050	1	11/30/2016 13:54
Uranium	ND		0.00050	1	11/30/2016 13:54
Vanadium	**0.0014**		0.00050	1	11/30/2016 13:54
Zinc	ND		0.015	1	11/30/2016 13:54

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:00
Antimony	ND		0.00050	1	11/30/2016 14:00
Arsenic	ND		0.00050	1	11/30/2016 14:00
Barium	**0.014**		0.0050	1	11/30/2016 14:00
Beryllium	ND		0.00050	1	11/30/2016 14:00
Cadmium	ND		0.00025	1	11/30/2016 14:00
Calcium	**12**	B	0.10	1	11/30/2016 14:00
Chromium	**0.00074**		0.00050	1	11/30/2016 14:00
Cobalt	ND		0.00050	1	11/30/2016 14:00
Copper	ND		0.00050	1	11/30/2016 14:00
Iron	ND		0.020	1	11/30/2016 14:00
Lead	ND		0.00050	1	11/30/2016 14:00
Lithium	ND		0.0050	1	11/30/2016 14:00
Magnesium	**4.7**	B	0.020	1	11/30/2016 14:00
Manganese	**0.024**		0.020	1	11/30/2016 14:00
Mercury	ND		0.000050	1	11/30/2016 14:00
Molybdenum	**0.0068**		0.00050	1	11/30/2016 14:00
Nickel	**0.00051**		0.00050	1	11/30/2016 14:00
Potassium	**2.2**	B	0.020	1	11/30/2016 14:00
Selenium	ND		0.00050	1	11/30/2016 14:00
Silver	ND		0.00050	1	11/30/2016 14:00
Sodium	**26**	B	0.10	1	11/30/2016 14:00
Strontium	**0.082**		0.020	1	11/30/2016 14:00
Thallium	ND		0.00050	1	11/30/2016 14:00
Uranium	ND		0.00050	1	11/30/2016 14:00
Vanadium	**0.0015**		0.00050	1	11/30/2016 14:00
Zinc	ND		0.015	1	11/30/2016 14:00

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:06
Antimony	ND		0.00050	1	11/30/2016 14:06
Arsenic	ND		0.00050	1	11/30/2016 14:06
Barium	**0.012**		0.0050	1	11/30/2016 14:06
Beryllium	ND		0.00050	1	11/30/2016 14:06
Cadmium	ND		0.00025	1	11/30/2016 14:06
Calcium	**9.8**	B	0.10	1	11/30/2016 14:06
Chromium	**0.00087**		0.00050	1	11/30/2016 14:06
Cobalt	ND		0.00050	1	11/30/2016 14:06
Copper	ND		0.00050	1	11/30/2016 14:06
Iron	ND		0.020	1	11/30/2016 14:06
Lead	ND		0.00050	1	11/30/2016 14:06
Lithium	ND		0.0050	1	11/30/2016 14:06
Magnesium	**4.3**	B	0.020	1	11/30/2016 14:06
Manganese	**0.024**		0.020	1	11/30/2016 14:06
Mercury	ND		0.000050	1	11/30/2016 14:06
Molybdenum	**0.0071**		0.00050	1	11/30/2016 14:06
Nickel	ND		0.00050	1	11/30/2016 14:06
Potassium	**1.4**	B	0.020	1	11/30/2016 14:06
Selenium	ND		0.00050	1	11/30/2016 14:06
Silver	ND		0.00050	1	11/30/2016 14:06
Sodium	**26**	B	0.10	1	11/30/2016 14:06
Strontium	**0.056**		0.020	1	11/30/2016 14:06
Thallium	ND		0.00050	1	11/30/2016 14:06
Uranium	ND		0.00050	1	11/30/2016 14:06
Vanadium	**0.00093**		0.00050	1	11/30/2016 14:06
Zinc	ND		0.015	1	11/30/2016 14:06

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:30
Antimony	ND		0.00050	1	11/30/2016 14:30
Arsenic	ND		0.00050	1	11/30/2016 14:30
Barium	**0.013**		0.0050	1	11/30/2016 14:30
Beryllium	ND		0.00050	1	11/30/2016 14:30
Cadmium	ND		0.00025	1	11/30/2016 14:30
Calcium	**10**	B	0.10	1	11/30/2016 14:30
Chromium	**0.00097**		0.00050	1	11/30/2016 14:30
Cobalt	ND		0.00050	1	11/30/2016 14:30
Copper	ND		0.00050	1	11/30/2016 14:30
Iron	ND		0.020	1	11/30/2016 14:30
Lead	ND		0.00050	1	11/30/2016 14:30
Lithium	ND		0.0050	1	11/30/2016 14:30
Magnesium	**4.5**	B	0.020	1	11/30/2016 14:30
Manganese	**0.021**		0.020	1	11/30/2016 14:30
Mercury	ND		0.000050	1	11/30/2016 14:30
Molybdenum	**0.010**		0.00050	1	11/30/2016 14:30
Nickel	ND		0.00050	1	11/30/2016 14:30
Potassium	**1.4**	B	0.020	1	11/30/2016 14:30
Selenium	ND		0.00050	1	11/30/2016 14:30
Silver	ND		0.00050	1	11/30/2016 14:30
Sodium	**28**	B	0.10	1	11/30/2016 14:30
Strontium	**0.058**		0.020	1	11/30/2016 14:30
Thallium	ND		0.00050	1	11/30/2016 14:30
Uranium	ND		0.00050	1	11/30/2016 14:30
Vanadium	**0.0010**		0.00050	1	11/30/2016 14:30
Zinc	ND		0.0050	1	11/30/2016 14:30

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:36
Antimony	ND		0.00050	1	11/30/2016 14:36
Arsenic	**0.00054**		0.00050	1	11/30/2016 14:36
Barium	**0.011**		0.0050	1	11/30/2016 14:36
Beryllium	ND		0.00050	1	11/30/2016 14:36
Cadmium	ND		0.00025	1	11/30/2016 14:36
Calcium	**9.4**	B	0.10	1	11/30/2016 14:36
Chromium	**0.00061**		0.00050	1	11/30/2016 14:36
Cobalt	ND		0.00050	1	11/30/2016 14:36
Copper	ND		0.00050	1	11/30/2016 14:36
Iron	ND		0.020	1	11/30/2016 14:36
Lead	ND		0.00050	1	11/30/2016 14:36
Lithium	ND		0.0050	1	11/30/2016 14:36
Magnesium	**4.3**	B	0.020	1	11/30/2016 14:36
Manganese	**0.047**		0.020	1	11/30/2016 14:36
Mercury	ND		0.000050	1	11/30/2016 14:36
Molybdenum	**0.017**		0.00050	1	11/30/2016 14:36
Nickel	ND		0.00050	1	11/30/2016 14:36
Potassium	**1.4**	B	0.020	1	11/30/2016 14:36
Selenium	ND		0.00050	1	11/30/2016 14:36
Silver	ND		0.00050	1	11/30/2016 14:36
Sodium	**29**	B	0.10	1	11/30/2016 14:36
Strontium	**0.056**		0.020	1	11/30/2016 14:36
Thallium	ND		0.00050	1	11/30/2016 14:36
Uranium	ND		0.00050	1	11/30/2016 14:36
Vanadium	**0.0023**		0.00050	1	11/30/2016 14:36
Zinc	ND		0.0050	1	11/30/2016 14:36

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:43
Antimony	ND		0.00050	1	11/30/2016 14:43
Arsenic	ND		0.00050	1	11/30/2016 14:43
Barium	**0.012**		0.0050	1	11/30/2016 14:43
Beryllium	ND		0.00050	1	11/30/2016 14:43
Cadmium	ND		0.00025	1	11/30/2016 14:43
Calcium	**9.6**	B	0.10	1	11/30/2016 14:43
Chromium	**0.00074**		0.00050	1	11/30/2016 14:43
Cobalt	ND		0.00050	1	11/30/2016 14:43
Copper	ND		0.00050	1	11/30/2016 14:43
Iron	ND		0.020	1	11/30/2016 14:43
Lead	ND		0.00050	1	11/30/2016 14:43
Lithium	ND		0.0050	1	11/30/2016 14:43
Magnesium	**4.3**	B	0.020	1	11/30/2016 14:43
Manganese	**0.036**		0.020	1	11/30/2016 14:43
Mercury	ND		0.000050	1	11/30/2016 14:43
Molybdenum	**0.013**		0.00050	1	11/30/2016 14:43
Nickel	ND		0.00050	1	11/30/2016 14:43
Potassium	**1.4**	B	0.020	1	11/30/2016 14:43
Selenium	ND		0.00050	1	11/30/2016 14:43
Silver	ND		0.00050	1	11/30/2016 14:43
Sodium	**30**	B	0.10	1	11/30/2016 14:43
Strontium	**0.059**		0.020	1	11/30/2016 14:43
Thallium	ND		0.00050	1	11/30/2016 14:43
Uranium	ND		0.00050	1	11/30/2016 14:43
Vanadium	**0.0019**		0.00050	1	11/30/2016 14:43
Zinc	ND		0.0050	1	11/30/2016 14:43

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:49
Antimony	ND		0.00050	1	11/30/2016 14:49
Arsenic	ND		0.00050	1	11/30/2016 14:49
Barium	**0.013**		0.0050	1	11/30/2016 14:49
Beryllium	ND		0.00050	1	11/30/2016 14:49
Cadmium	ND		0.00025	1	11/30/2016 14:49
Calcium	**11**	B	0.10	1	11/30/2016 14:49
Chromium	**0.00064**		0.00050	1	11/30/2016 14:49
Cobalt	ND		0.00050	1	11/30/2016 14:49
Copper	ND		0.00050	1	11/30/2016 14:49
Iron	ND		0.020	1	11/30/2016 14:49
Lead	ND		0.00050	1	11/30/2016 14:49
Lithium	ND		0.0050	1	11/30/2016 14:49
Magnesium	**4.4**	B	0.020	1	11/30/2016 14:49
Manganese	**0.039**		0.020	1	11/30/2016 14:49
Mercury	ND		0.000050	1	11/30/2016 14:49
Molybdenum	**0.014**		0.00050	1	11/30/2016 14:49
Nickel	ND		0.00050	1	11/30/2016 14:49
Potassium	**1.4**	B	0.020	1	11/30/2016 14:49
Selenium	ND		0.00050	1	11/30/2016 14:49
Silver	ND		0.00050	1	11/30/2016 14:49
Sodium	**25**	B	0.10	1	11/30/2016 14:49
Strontium	**0.062**		0.020	1	11/30/2016 14:49
Thallium	ND		0.00050	1	11/30/2016 14:49
Uranium	ND		0.00050	1	11/30/2016 14:49
Vanadium	**0.0020**		0.00050	1	11/30/2016 14:49
Zinc	ND		0.0050	1	11/30/2016 14:49

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 14:55
Antimony	ND		0.00050	1	11/30/2016 14:55
Arsenic	ND		0.00050	1	11/30/2016 14:55
Barium	**0.013**		0.0050	1	11/30/2016 14:55
Beryllium	ND		0.00050	1	11/30/2016 14:55
Cadmium	ND		0.00025	1	11/30/2016 14:55
Calcium	**12**	B	0.10	1	11/30/2016 14:55
Chromium	**0.00067**		0.00050	1	11/30/2016 14:55
Cobalt	ND		0.00050	1	11/30/2016 14:55
Copper	ND		0.00050	1	11/30/2016 14:55
Iron	ND		0.020	1	11/30/2016 14:55
Lead	ND		0.00050	1	11/30/2016 14:55
Lithium	ND		0.0050	1	11/30/2016 14:55
Magnesium	**4.5**	B	0.020	1	11/30/2016 14:55
Manganese	**0.046**		0.020	1	11/30/2016 14:55
Mercury	**0.000053**		0.000050	1	11/30/2016 14:55
Molybdenum	**0.013**		0.00050	1	11/30/2016 14:55
Nickel	ND		0.00050	1	11/30/2016 14:55
Potassium	**1.4**	B	0.020	1	11/30/2016 14:55
Selenium	ND		0.00050	1	11/30/2016 14:55
Silver	ND		0.00050	1	11/30/2016 14:55
Sodium	**27**	B	0.10	1	11/30/2016 14:55
Strontium	**0.064**		0.020	1	11/30/2016 14:55
Thallium	ND		0.00050	1	11/30/2016 14:55
Uranium	ND		0.00050	1	11/30/2016 14:55
Vanadium	**0.0019**		0.00050	1	11/30/2016 14:55
Zinc	ND		0.0050	1	11/30/2016 14:55

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 15:01
Antimony	ND		0.00050	1	11/30/2016 15:01
Arsenic	ND		0.00050	1	11/30/2016 15:01
Barium	**0.015**		0.0050	1	11/30/2016 15:01
Beryllium	ND		0.00050	1	11/30/2016 15:01
Cadmium	ND		0.00025	1	11/30/2016 15:01
Calcium	**13**	B	0.10	1	11/30/2016 15:01
Chromium	**0.0014**		0.00050	1	11/30/2016 15:01
Cobalt	ND		0.00050	1	11/30/2016 15:01
Copper	ND		0.00050	1	11/30/2016 15:01
Iron	ND		0.020	1	11/30/2016 15:01
Lead	ND		0.00050	1	11/30/2016 15:01
Lithium	ND		0.0050	1	11/30/2016 15:01
Magnesium	**4.6**	B	0.020	1	11/30/2016 15:01
Manganese	ND		0.020	1	11/30/2016 15:01
Mercury	ND		0.000050	1	11/30/2016 15:01
Molybdenum	**0.0042**		0.00050	1	11/30/2016 15:01
Nickel	ND		0.00050	1	11/30/2016 15:01
Potassium	**1.0**	B	0.020	1	11/30/2016 15:01
Selenium	ND		0.00050	1	11/30/2016 15:01
Silver	ND		0.00050	1	11/30/2016 15:01
Sodium	**22**	B	0.10	1	11/30/2016 15:01
Strontium	**0.072**		0.020	1	11/30/2016 15:01
Thallium	ND		0.00050	1	11/30/2016 15:01
Uranium	ND		0.00050	1	11/30/2016 15:01
Vanadium	**0.00098**		0.00050	1	11/30/2016 15:01
Zinc	ND		0.0050	1	11/30/2016 15:01

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 15:07
Antimony	ND		0.00050	1	11/30/2016 15:07
Arsenic	ND		0.00050	1	11/30/2016 15:07
Barium	**0.015**		0.0050	1	11/30/2016 15:07
Beryllium	ND		0.00050	1	11/30/2016 15:07
Cadmium	ND		0.00025	1	11/30/2016 15:07
Calcium	**13**	B	0.10	1	11/30/2016 15:07
Chromium	**0.0011**		0.00050	1	11/30/2016 15:07
Cobalt	ND		0.00050	1	11/30/2016 15:07
Copper	ND		0.00050	1	11/30/2016 15:07
Iron	ND		0.020	1	11/30/2016 15:07
Lead	ND		0.00050	1	11/30/2016 15:07
Lithium	ND		0.0050	1	11/30/2016 15:07
Magnesium	**4.6**	B	0.020	1	11/30/2016 15:07
Manganese	ND		0.020	1	11/30/2016 15:07
Mercury	ND		0.000050	1	11/30/2016 15:07
Molybdenum	**0.0043**		0.00050	1	11/30/2016 15:07
Nickel	ND		0.00050	1	11/30/2016 15:07
Potassium	**1.0**	B	0.020	1	11/30/2016 15:07
Selenium	ND		0.00050	1	11/30/2016 15:07
Silver	ND		0.00050	1	11/30/2016 15:07
Sodium	**24**	B	0.10	1	11/30/2016 15:07
Strontium	**0.073**		0.020	1	11/30/2016 15:07
Thallium	ND		0.00050	1	11/30/2016 15:07
Uranium	ND		0.00050	1	11/30/2016 15:07
Vanadium	**0.00092**		0.00050	1	11/30/2016 15:07
Zinc	ND		0.0050	1	11/30/2016 15:07

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 15:13
Antimony	ND		0.00050	1	11/30/2016 15:13
Arsenic	ND		0.00050	1	11/30/2016 15:13
Barium	**0.012**		0.0050	1	11/30/2016 15:13
Beryllium	ND		0.00050	1	11/30/2016 15:13
Cadmium	ND		0.00025	1	11/30/2016 15:13
Calcium	**12**	B	0.10	1	11/30/2016 15:13
Chromium	**0.00086**		0.00050	1	11/30/2016 15:13
Cobalt	ND		0.00050	1	11/30/2016 15:13
Copper	ND		0.00050	1	11/30/2016 15:13
Iron	ND		0.020	1	11/30/2016 15:13
Lead	ND		0.00050	1	11/30/2016 15:13
Lithium	ND		0.0050	1	11/30/2016 15:13
Magnesium	**4.3**	B	0.020	1	11/30/2016 15:13
Manganese	**0.034**		0.020	1	11/30/2016 15:13
Mercury	ND		0.000050	1	11/30/2016 15:13
Molybdenum	**0.0093**		0.00050	1	11/30/2016 15:13
Nickel	ND		0.00050	1	11/30/2016 15:13
Potassium	**1.3**	B	0.020	1	11/30/2016 15:13
Selenium	ND		0.00050	1	11/30/2016 15:13
Silver	ND		0.00050	1	11/30/2016 15:13
Sodium	**23**	B	0.10	1	11/30/2016 15:13
Strontium	**0.065**		0.020	1	11/30/2016 15:13
Thallium	ND		0.00050	1	11/30/2016 15:13
Uranium	ND		0.00050	1	11/30/2016 15:13
Vanadium	**0.0019**		0.00050	1	11/30/2016 15:13
Zinc	ND		0.0050	1	11/30/2016 15:13

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 15:19
Antimony	ND		0.00050	1	11/30/2016 15:19
Arsenic	ND		0.00050	1	11/30/2016 15:19
Barium	**0.013**		0.0050	1	11/30/2016 15:19
Beryllium	ND		0.00050	1	11/30/2016 15:19
Cadmium	ND		0.00025	1	11/30/2016 15:19
Calcium	**13**	B	0.10	1	11/30/2016 15:19
Chromium	**0.0016**		0.00050	1	11/30/2016 15:19
Cobalt	ND		0.00050	1	11/30/2016 15:19
Copper	ND		0.00050	1	11/30/2016 15:19
Iron	ND		0.020	1	11/30/2016 15:19
Lead	ND		0.00050	1	11/30/2016 15:19
Lithium	ND		0.0050	1	11/30/2016 15:19
Magnesium	**4.6**	B	0.020	1	11/30/2016 15:19
Manganese	**0.024**		0.020	1	11/30/2016 15:19
Mercury	ND		0.000050	1	11/30/2016 15:19
Molybdenum	**0.0068**		0.00050	1	11/30/2016 15:19
Nickel	ND		0.00050	1	11/30/2016 15:19
Potassium	**1.1**	B	0.020	1	11/30/2016 15:19
Selenium	ND		0.00050	1	11/30/2016 15:19
Silver	ND		0.00050	1	11/30/2016 15:19
Sodium	**25**	B	0.10	1	11/30/2016 15:19
Strontium	**0.071**		0.020	1	11/30/2016 15:19
Thallium	ND		0.00050	1	11/30/2016 15:19
Uranium	ND		0.00050	1	11/30/2016 15:19
Vanadium	**0.0015**		0.00050	1	11/30/2016 15:19
Zinc	ND		0.0050	1	11/30/2016 15:19

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 15:25
Antimony	ND		0.00050	1	11/30/2016 15:25
Arsenic	ND		0.00050	1	11/30/2016 15:25
Barium	**0.012**		0.0050	1	11/30/2016 15:25
Beryllium	ND		0.00050	1	11/30/2016 15:25
Cadmium	**0.00026**		0.00025	1	11/30/2016 15:25
Calcium	**12**	B	0.10	1	11/30/2016 15:25
Chromium	**0.0010**		0.00050	1	11/30/2016 15:25
Cobalt	ND		0.00050	1	11/30/2016 15:25
Copper	ND		0.00050	1	11/30/2016 15:25
Iron	ND		0.020	1	11/30/2016 15:25
Lead	ND		0.00050	1	11/30/2016 15:25
Lithium	ND		0.0050	1	11/30/2016 15:25
Magnesium	**4.4**	B	0.020	1	11/30/2016 15:25
Manganese	**0.024**		0.020	1	11/30/2016 15:25
Mercury	ND		0.000050	1	11/30/2016 15:25
Molybdenum	**0.012**		0.00050	1	11/30/2016 15:25
Nickel	ND		0.00050	1	11/30/2016 15:25
Potassium	**1.0**	B	0.020	1	11/30/2016 15:25
Selenium	ND		0.00050	1	11/30/2016 15:25
Silver	ND		0.00050	1	11/30/2016 15:25
Sodium	**23**	B	0.10	1	11/30/2016 15:25
Strontium	**0.068**		0.020	1	11/30/2016 15:25
Thallium	ND		0.00050	1	11/30/2016 15:25
Uranium	ND		0.00050	1	11/30/2016 15:25
Vanadium	**0.0016**		0.00050	1	11/30/2016 15:25
Zinc	ND		0.0050	1	11/30/2016 15:25

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:21
Antimony	ND		0.00050	1	11/30/2016 16:21
Arsenic	ND		0.00050	1	11/30/2016 16:21
Barium	**0.012**		0.0050	1	11/30/2016 16:21
Beryllium	ND		0.00050	1	11/30/2016 16:21
Cadmium	ND		0.00025	1	11/30/2016 16:21
Calcium	**12**	B	0.10	1	11/30/2016 16:21
Chromium	**0.0011**		0.00050	1	11/30/2016 16:21
Cobalt	ND		0.00050	1	11/30/2016 16:21
Copper	ND		0.00050	1	11/30/2016 16:21
Iron	ND		0.020	1	11/30/2016 16:21
Lead	ND		0.00050	1	11/30/2016 16:21
Lithium	ND		0.0050	1	11/30/2016 16:21
Magnesium	**4.4**	B	0.020	1	11/30/2016 16:21
Manganese	**0.027**		0.020	1	11/30/2016 16:21
Mercury	ND		0.000050	1	11/30/2016 16:21
Molybdenum	**0.013**		0.00050	1	11/30/2016 16:21
Nickel	ND		0.00050	1	11/30/2016 16:21
Potassium	**1.0**	B	0.020	1	11/30/2016 16:21
Selenium	ND		0.00050	1	11/30/2016 16:21
Silver	ND		0.00050	1	11/30/2016 16:21
Sodium	**25**	B	0.10	1	11/30/2016 16:21
Strontium	**0.068**		0.020	1	11/30/2016 16:21
Thallium	ND		0.00050	1	11/30/2016 16:21
Uranium	ND		0.00050	1	11/30/2016 16:21
Vanadium	**0.0016**		0.00050	1	11/30/2016 16:21
Zinc	ND		0.0050	1	11/30/2016 16:21

Analyst(s): MIG

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 11/22/16-11/23/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:27
Antimony	ND		0.00050	1	11/30/2016 16:27
Arsenic	ND		0.00050	1	11/30/2016 16:27
Barium	**0.013**		0.0050	1	11/30/2016 16:27
Beryllium	ND		0.00050	1	11/30/2016 16:27
Cadmium	ND		0.00025	1	11/30/2016 16:27
Calcium	**13**	B	0.10	1	11/30/2016 16:27
Chromium	**0.00096**		0.00050	1	11/30/2016 16:27
Cobalt	ND		0.00050	1	11/30/2016 16:27
Copper	ND		0.00050	1	11/30/2016 16:27
Iron	ND		0.020	1	11/30/2016 16:27
Lead	ND		0.00050	1	11/30/2016 16:27
Lithium	ND		0.0050	1	11/30/2016 16:27
Magnesium	**4.9**	B	0.020	1	11/30/2016 16:27
Manganese	**0.024**		0.020	1	11/30/2016 16:27
Mercury	ND		0.000050	1	11/30/2016 16:27
Molybdenum	**0.0062**		0.00050	1	11/30/2016 16:27
Nickel	ND		0.00050	1	11/30/2016 16:27
Potassium	**1.1**	B	0.020	1	11/30/2016 16:27
Selenium	ND		0.00050	1	11/30/2016 16:27
Silver	ND		0.00050	1	11/30/2016 16:27
Sodium	**23**	B	0.10	1	11/30/2016 16:27
Strontium	**0.074**		0.020	1	11/30/2016 16:27
Thallium	ND		0.00050	1	11/30/2016 16:27
Uranium	ND		0.00050	1	11/30/2016 16:27
Vanadium	**0.0015**		0.00050	1	11/30/2016 16:27
Zinc	ND		0.0050	1	11/30/2016 16:27

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWD-IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:33
Antimony	ND		0.00050	1	11/30/2016 16:33
Arsenic	ND		0.00050	1	11/30/2016 16:33
Barium	**0.012**		0.0050	1	11/30/2016 16:33
Beryllium	ND		0.00050	1	11/30/2016 16:33
Cadmium	ND		0.00025	1	11/30/2016 16:33
Calcium	**13**	B	0.10	1	11/30/2016 16:33
Chromium	**0.00085**		0.00050	1	11/30/2016 16:33
Cobalt	ND		0.00050	1	11/30/2016 16:33
Copper	ND		0.00050	1	11/30/2016 16:33
Iron	ND		0.020	1	11/30/2016 16:33
Lead	ND		0.00050	1	11/30/2016 16:33
Lithium	ND		0.0050	1	11/30/2016 16:33
Magnesium	**4.6**	B	0.020	1	11/30/2016 16:33
Manganese	**0.030**		0.020	1	11/30/2016 16:33
Mercury	ND		0.000050	1	11/30/2016 16:33
Molybdenum	**0.0041**		0.00050	1	11/30/2016 16:33
Nickel	ND		0.00050	1	11/30/2016 16:33
Potassium	**1.1**	B	0.020	1	11/30/2016 16:33
Selenium	ND		0.00050	1	11/30/2016 16:33
Silver	ND		0.00050	1	11/30/2016 16:33
Sodium	**25**	B	0.10	1	11/30/2016 16:33
Strontium	**0.071**		0.020	1	11/30/2016 16:33
Thallium	ND		0.00050	1	11/30/2016 16:33
Uranium	ND		0.00050	1	11/30/2016 16:33
Vanadium	**0.0013**		0.00050	1	11/30/2016 16:33
Zinc	ND		0.0050	1	11/30/2016 16:33

Analyst(s): MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**301 @ 21.7°C**	±10	1	11/23/2016 16:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**297 @ 21.6°C**	±10	1	11/23/2016 16:33

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**294 @ 21.9°C**	±10	1	11/23/2016 16:36

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130321**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**281 @ 22.4°C**	±10	1	11/23/2016 16:39

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**286 @ 22.3°C**	±10	1	11/23/2016 16:42

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**283 @ 22.1°C**	±10	1	11/23/2016 16:48

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**289 @ 22.0°C**	±10	1	11/23/2016 16:51

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**288 @ 22.1°C**	±10	1	11/23/2016 16:54

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**286 @ 22.4°C**	±10	1	11/23/2016 16:57

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**276 @ 21.9°C**	±10	1	11/23/2016 17:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**294 @ 21.7°C**	±10	1	11/23/2016 17:06

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**297 @ 21.8°C**	±10	1	11/23/2016 17:09

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWD-IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**293 @ 21.9°C**	±10	1	11/23/2016 17:12

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130322**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**296 @ 22.0°C**	±10	1	11/23/2016 17:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**295 @ 21.8°C**	±10	1	11/23/2016 17:18

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**292 @ 21.7°C**	±10	1	11/23/2016 17:24

Analyst(s): RB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 11/23/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: SM2580B-97
Analytical Method: SM2580B-97
Unit: mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**294 @ 21.7°C**	±10	1	11/23/2016 17:27

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**287 @ 21.9°C**	±10	1	11/23/2016 17:30

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

Leachate pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	1609D47-001C	Soil	09/28/2016 08:00	WetChem	130138

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.87**		±0.05	1	11/21/2016 15:59

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	1609D47-001D	Soil	09/28/2016 08:00	WetChem	130138

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.89**		±0.05	1	11/21/2016 16:02

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	1609D47-002C	Soil	09/28/2016 08:20	WetChem	130138

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.85**		±0.05	1	11/21/2016 16:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	1609D47-002D	Soil	09/28/2016 08:20	WetChem	130138

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.96**	H	±0.05	1	11/21/2016 16:08

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

Leachate pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.83**		±0.05	1	11/21/2016 16:11

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.88**		±0.05	1	11/21/2016 16:17

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.86**		±0.05	1	11/21/2016 16:22

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.96**		±0.05	1	11/21/2016 16:27

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

Leachate pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.88**		±0.05	1	11/21/2016 16:32

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.91**		±0.05	1	11/21/2016 16:37

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.77**		±0.05	1	11/21/2016 16:42

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.88**		±0.05	1	11/21/2016 16:47

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

Leachate pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.86**		±0.05	1	11/21/2016 16:52

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130140**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.90**		±0.05	1	11/21/2016 16:57

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.75**		±0.05	1	11/21/2016 15:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.93**		±0.05	1	11/21/2016 15:56

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWD-IPR	**Unit:**	pH units @ 25°C

Leachate pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.85**		±0.05	1	11/21/2016 15:59

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.91**		±0.05	1	11/21/2016 16:02

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:15

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	106	70-130	11/29/2016 16:15

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:17

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	97	70-130	11/29/2016 16:17

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:25

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	11/29/2016 16:25

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:28

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	103	70-130	11/29/2016 16:28

Analyst(s): BBO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:31

Surrogates	REC (%)	Limits		
Terbium	107	70-130		11/29/2016 16:31

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:33

Surrogates	REC (%)	Limits		
Terbium	104	70-130		11/29/2016 16:33

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:36

Surrogates	REC (%)	Limits		
Terbium	107	70-130		11/29/2016 16:36

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:39

Surrogates	REC (%)	Limits		
Terbium	99	70-130		11/29/2016 16:39

Analyst(s): BBO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:41

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	96	70-130	11/29/2016 16:41

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:44

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	101	70-130	11/29/2016 16:44

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:47

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	11/29/2016 16:47

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:49

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	101	70-130	11/29/2016 16:49

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 16:57

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	101	70-130	11/29/2016 16:57

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:00

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	11/29/2016 17:00

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:03

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	11/29/2016 17:03

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:05

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	11/29/2016 17:05

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:08

Surrogates	REC (%)	Limits		
Terbium	104	70-130		11/29/2016 17:08

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:11

Surrogates	REC (%)	Limits		
Terbium	101	70-130		11/29/2016 17:11

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130484**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**215**		10.0	1	11/22/2016 19:30
Total Dissolved Solids (mg/L)	**105**		4.80	1	11/22/2016 19:30

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130484**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**226**		10.0	1	11/22/2016 19:35
Total Dissolved Solids (mg/L)	**111**		4.80	1	11/22/2016 19:35

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130484**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**213**		10.0	1	11/22/2016 19:40
Total Dissolved Solids (mg/L)	**104**		4.80	1	11/22/2016 19:40

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130484**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**225**		10.0	1	11/22/2016 19:45
Total Dissolved Solids (mg/L)	**110**		4.80	1	11/22/2016 19:45

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**211**		10.0	1	11/22/2016 19:50
Total Dissolved Solids (mg/L)	**103**		4.80	1	11/22/2016 19:50

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**222**		10.0	1	11/22/2016 20:00
Total Dissolved Solids (mg/L)	**109**		4.80	1	11/22/2016 20:00

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**217**		10.0	1	11/22/2016 20:05
Total Dissolved Solids (mg/L)	**106**		4.80	1	11/22/2016 20:05

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**227**		10.0	1	11/22/2016 20:10
Total Dissolved Solids (mg/L)	**111**		4.80	1	11/22/2016 20:10

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**215**		10.0	1	11/22/2016 20:15
Total Dissolved Solids (mg/L)	**105**		4.80	1	11/22/2016 20:15

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**226**		10.0	1	11/22/2016 20:20
Total Dissolved Solids (mg/L)	**111**		4.80	1	11/22/2016 20:20

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**215**		10.0	1	11/22/2016 20:25
Total Dissolved Solids (mg/L)	**105**		4.80	1	11/22/2016 20:25

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**225**		10.0	1	11/22/2016 20:30
Total Dissolved Solids (mg/L)	**110**		4.80	1	11/22/2016 20:30

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**219**	H	10.0	1	11/22/2016 20:35
Total Dissolved Solids (mg/L)	**107**	H	4.80	1	11/22/2016 20:35

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130485**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**227**	H	10.0	1	11/22/2016 20:40
Total Dissolved Solids (mg/L)	**111**	H	4.80	1	11/22/2016 20:40

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130486**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**227**	H	10.0	1	11/02/2016 18:00
Total Dissolved Solids (mg/L)	**111**	H	4.80	1	11/02/2016 18:00

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16-11/22/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130486**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**227**	H	10.0	1	11/02/2016 18:10
Total Dissolved Solids (mg/L)	**111**	H	4.80	1	11/02/2016 18:10

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130486**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**219**		10.0	1	11/02/2016 18:15
Total Dissolved Solids (mg/L)	**107**		4.80	1	11/02/2016 18:15

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130486**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**229**		10.0	1	11/02/2016 18:20
Total Dissolved Solids (mg/L)	**112**		4.80	1	11/02/2016 18:20

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @17.0 Ft	**1609D47-001A**	**Soil**	**09/28/2016 08:00**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**53.9**	25.0	1	10/03/2016 19:52

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @23.0 Ft	**1609D47-002A**	**Soil**	**09/28/2016 08:20**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**46.5**	25.0	1	10/03/2016 19:58

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 50.0 Ft	**1609D47-003A**	**Soil**	**09/28/2016 10:00**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**61.8**	25.0	1	10/03/2016 20:01

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @65.0 Ft	**1609D47-004A**	**Soil**	**09/28/2016 10:50**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**48.4**	25.0	1	10/03/2016 20:04

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 85.0 Ft	**1609D47-005A**	**Soil**	**09/28/2016 12:15**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**49.8**	25.0	1	10/03/2016 20:07

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 95.0 Ft	**1609D47-006A**	**Soil**	**09/28/2016 12:30**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**79.0**	25.0	1	10/03/2016 20:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 110.0 Ft	**1609D47-007A**	**Soil**	**09/28/2016 13:30**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**58.5**	25.0	1	10/03/2016 20:13

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 125 Ft	**1609D47-008A**	**Soil**	**09/28/2016 14:00**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**56.7**	25.0	1	10/03/2016 20:16

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWD-IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 155 Ft	**1609D47-009A**	**Soil**	**09/28/2016 16:00**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**67.1**	25.0	1	10/03/2016 20:19

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @17.0 Ft HH	**1609D47-001B**	**Soil**	**09/28/2016 08:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	15	1	11/01/2016 19:58

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @23.0 Ft HH	**1609D47-002B**	**Soil**	**09/28/2016 08:20**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2700**	15	1	11/01/2016 20:02

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 50.0 Ft HH	**1609D47-003B**	**Soil**	**09/28/2016 10:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	15	1	11/01/2016 20:05

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @65.0 Ft HH	**1609D47-004B**	**Soil**	**09/28/2016 10:50**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3000**	15	1	11/01/2016 20:09

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 85.0 Ft HH	**1609D47-005B**	**Soil**	**09/28/2016 12:15**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	15	1	11/01/2016 20:20

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 95.0 Ft HH	**1609D47-006B**	**Soil**	**09/28/2016 12:30**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3200**	15	1	11/01/2016 20:24

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 110.0 Ft HH	**1609D47-007B**	**Soil**	**09/28/2016 13:30**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	150	10	11/01/2016 18:27

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 125 Ft HH	**1609D47-008B**	**Soil**	**09/28/2016 14:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	15	1	11/01/2016 20:32

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-4 @ 155 Ft HH	**1609D47-009B**	**Soil**	**09/28/2016 16:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2700**	15	1	11/01/2016 20:36

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	1609D47-001C	Soil	09/28/2016 08:00	ICP-JY	130209

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.1**	B	0.050	1	11/30/2016 18:31

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	1609D47-001D	Soil	09/28/2016 08:00	ICP-JY	130298

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.3**	B	0.050	1	11/30/2016 18:35

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	1609D47-002C	Soil	09/28/2016 08:20	ICP-JY	130209

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.9**	B	0.050	1	11/30/2016 18:46

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	1609D47-002D	Soil	09/28/2016 08:20	ICP-JY	130298

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.6**	B	0.050	1	12/01/2016 13:03

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.4**	B	0.050	1	11/30/2016 18:54

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.6**	B	0.050	1	12/01/2016 13:07

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**8.0**	B	0.050	1	11/30/2016 19:01

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.2**	B	0.050	1	11/30/2016 19:05

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.4**	B	0.050	1	11/30/2016 19:09

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.2**	B	0.050	1	11/30/2016 19:13

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.6**	B	0.050	1	12/01/2016 13:11

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.3**	B	0.050	1	11/30/2016 19:20

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.9**	B	0.050	1	11/30/2016 19:32

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.8**	B	0.050	1	11/30/2016 19:35

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.9**	B	0.050	1	12/01/2016 13:15

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.2**	B	0.050	1	11/30/2016 19:43

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWD-IPR	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.5**	B	0.050	1	11/30/2016 19:47

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.7**	B	0.050	1	11/30/2016 19:51

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-S⁻² D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**SPECTROPHOTOMETER**	**130710**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:45

Analyst(s): RB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 12/2/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: SM4500-S^{-2} D-2000
Analytical Method: SM4500 S-2 D
Unit: mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:56

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 20:59

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:02

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:05

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-S⁻² D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:08

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:11

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:14

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:17

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:23

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:26

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:29

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWD-IPR	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:32

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:35

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 16:59

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:34

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:03

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:36

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:07

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:38

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:11

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:42

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:15

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:46

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:19

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:50

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:23

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:39

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:27

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:54

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWD-IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:51

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Leachate Turbidity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130328**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.544**		0.100	1	11/23/2016 19:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WetChem**	**130328**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.287**		0.100	1	11/23/2016 19:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130328**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.268**		0.100	1	11/23/2016 19:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WetChem**	**130328**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.252**		0.100	1	11/23/2016 19:25

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Leachate Turbidity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.285**		0.100	1	11/23/2016 19:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.192**		0.100	1	11/23/2016 19:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.298**		0.100	1	11/23/2016 18:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.334**		0.100	1	11/23/2016 18:05

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Leachate Turbidity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.486**		0.100	1	11/23/2016 18:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.341**		0.100	1	11/23/2016 18:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.319**		0.100	1	11/23/2016 18:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.413**		0.100	1	11/23/2016 18:25

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Leachate Turbidity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.433**		0.100	1	11/23/2016 18:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WetChem**	**130329**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.345**		0.100	1	11/23/2016 18:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130330**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.388**		0.100	1	11/23/2016 18:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WetChem**	**130330**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.241**		0.100	1	11/23/2016 18:50

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWD-IPR	**Unit:**	NTU

Leachate Turbidity

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130330**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.278**		0.100	1	11/23/2016 18:55

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WetChem**	**130330**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.410**		0.100	1	11/23/2016 19:00

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WC_CNS**	**130134**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 07:02

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 18:43

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WC_CNS**	**130134**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 07:17

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 18:57

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 21:50

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 19:10

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WC_CNS**	**130134**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 07:29

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 19:22

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WC_CNS**	**130136**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 14:23

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 19:54

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WC_CNS**	**130136**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 14:35

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 20:07

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WC_CNS**	**130136**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 14:48

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 21:09

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WC_CNS**	**130136**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 15:00

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 21:24

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WC_CNS**	**130136**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/22/2016 15:14

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WC_CNS**	**130137**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND		0.70	1	11/21/2016 21:38

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 1	**1609D47-001C**	**Soil**	**09/28/2016 08:00**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 20:34

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 17.0 Ft Chem Dose 2	**1609D47-001D**	**Soil**	**09/28/2016 08:00**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 13:42

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 1	**1609D47-002C**	**Soil**	**09/28/2016 08:20**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 20:42

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 23.0 Ft Chem Dose 2	**1609D47-002D**	**Soil**	**09/28/2016 08:20**	**WC_CNS**	**130278**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 13:50

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 1	**1609D47-003C**	**Soil**	**09/28/2016 10:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	11/23/2016 16:15

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 50.0 Ft Chem Dose 2	**1609D47-003D**	**Soil**	**09/28/2016 10:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 13:58

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 1	**1609D47-004C**	**Soil**	**09/28/2016 10:50**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 21:40

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 65.0 Ft Chem Dose 2	**1609D47-004D**	**Soil**	**09/28/2016 10:50**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 14:13

Analyst(s): BAS

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/29/16 19:15
Date Prepared: 11/23/16
Project: SCVWD-IPR

WorkOrder: 1609D47
Extraction Method: E415.3
Analytical Method: E415.3
Unit: mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 1	**1609D47-005C**	**Soil**	**09/28/2016 12:15**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 21:48

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 85.0 Ft Chem Dose 2	**1609D47-005D**	**Soil**	**09/28/2016 12:15**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 14:35

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 1	**1609D47-006C**	**Soil**	**09/28/2016 12:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**26**	2.6	1	11/23/2016 21:55

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 95.0 Ft Chem Dose 2	**1609D47-006D**	**Soil**	**09/28/2016 12:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**33**	2.6	1	11/23/2016 15:06

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 1	**1609D47-007C**	**Soil**	**09/28/2016 13:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 22:03

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 110.0 Ft Chem Dose 2	**1609D47-007D**	**Soil**	**09/28/2016 13:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**33**	2.6	1	11/23/2016 15:45

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 1	**1609D47-008C**	**Soil**	**09/28/2016 14:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	11/23/2016 22:18

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 125 Ft Chem Dose 2	**1609D47-008D**	**Soil**	**09/28/2016 14:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 15:53

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Received:	9/29/16 19:15	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWD-IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 1	**1609D47-009C**	**Soil**	**09/28/2016 16:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 22:25

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-4 155 Ft Chem Dose 2	**1609D47-009D**	**Soil**	**09/28/2016 16:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 16:00

Analyst(s): BAS

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	12/1/16	**BatchID:**	130600
Date Analyzed:	11/25/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130600

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0248	0.00020	0.025	-	99	90-110

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	12/1/16	**BatchID:**	130601
Date Analyzed:	11/26/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130601

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0252	0.00020	0.025	-	101	90-110

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 9/29/16
Date Analyzed: 10/1/16
Instrument: IC3
Matrix: Soil
Project: SCVWD-IPR

WorkOrder: 1609D47
BatchID: 127389
Extraction Method: E300.0
Analytical Method: E300.0
Unit: mg/kg
Sample ID: MB/LCS-127389
1609D47-003AMS/MSD

QC Summary Report for E300.0

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	97.8	10	100	-	98	80-120
Nitrate as $NO3^-$	ND	433	45	440	-	98	80-120
Surrogate Recovery							
Formate	9.67	9.61		10	97	96	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Nitrate as N	93.0	89.6	100	ND	93	90	80-120	3.75	20
Nitrate as $NO3^-$	412	397	440	ND	94	90	80-120	3.75	20
Surrogate Recovery									
Formate	9.14	9.08	10		91	91	80-120	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16 - 12/1/16	**BatchID:**	130574
Date Analyzed:	11/21/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130574

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.980	0.10	1	-	98	85-115
Chloride	ND	0.984	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.989	0.10	1	-	99	85-115
Nitrate as $NO3^-$	ND	4.38	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.01	0.10	1	-	101	85-115
Nitrite as $NO2^-$	ND	3.30	0.33	3.3	-	100	85-115
Sulfate	ND	0.990	0.10	1	-	99	85-115
Surrogate Recovery							
Formate	0.106	0.104		0.10	106	104	85-115

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16 - 12/1/16	**BatchID:**	130575
Date Analyzed:	11/22/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130575

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.973	0.10	1	-	97	85-115
Chloride	ND	0.984	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.988	0.10	1	-	99	85-115
Nitrate as $NO3^-$	ND	4.37	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.00	0.10	1	-	100	85-115
Nitrite as $NO2^-$	ND	3.29	0.33	3.3	-	100	85-115
Sulfate	ND	0.985	0.10	1	-	99	85-115
Surrogate Recovery							
Formate	0.107	0.104		0.10	107	104	85-115

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/26/16 - 11/27/16	**BatchID:**	130543
Date Analyzed:	11/26/16 - 11/27/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130543

QC Summary Report for E314.0 (Perchlorate)

Analyte	MB Result	RL			
Perchlorate	ND	4.0	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Perchlorate	9.62	9.93	10	96	99	85-115	3.17	15

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/26/16	**BatchID:**	130544
Date Analyzed:	11/26/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130544 1611848-001NMS/MSD

QC Summary Report for E314.0 (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	10.3	4.0	10	-	103	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	9.12	10.2	10	ND	91	102	80-120	11.4	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/5/16	**BatchID:**	127623
Date Analyzed:	10/3/16 - 10/5/16	**Extraction Method:**	E314.0 modified
Instrument:	IC1	**Analytical Method:**	E314.0m
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-127623

QC Summary Report for E314.0m (Perchlorate)

Analyte	MB Result	RL			
Perchlorate	ND	0.40	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Perchlorate	1.10	1.07	1	110	107	80-120	2.59	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	9/29/16	**BatchID:**	127393
Date Analyzed:	10/3/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127393 1609D47-015AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0404	0.0050	0.050	-	81	53-116
Benzene	ND	0.0442	0.0050	0.050	-	88	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.162	0.050	0.20	-	81	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0468	0.0050	0.050	-	94	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0443	0.0040	0.050	-	89	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0422	0.0040	0.050	-	84	58-135
1,1-Dichloroethene	ND	0.0343	0.0050	0.050	-	69	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	9/29/16	**BatchID:**	127393
Date Analyzed:	10/3/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127393 1609D47-015AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0409	0.0050	0.050	-	82	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0414	0.0050	0.050	-	83	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0402	0.0050	0.050	-	80	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0492	0.0050	0.050	-	98	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0450	0.0050	0.050	-	90	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	9/29/16	**BatchID:**	127393
Date Analyzed:	10/3/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127393 1609D47-015AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.122	0.126		0.12	98	101	70-130
Toluene-d8	0.136	0.133		0.12	108	107	70-130
4-BFB	0.0124	0.0138		0.012	100	110	70-130
Benzene-d6	0.0849	0.0934		0.10	85	93	60-140
Ethylbenzene-d10	0.103	0.120		0.10	103	120	60-140
1,2-DCB-d4	0.0800	0.0882		0.10	80	88	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0328	0.0341	0.050	ND	66	68	53-116	3.91	20
Benzene	0.0383	0.0406	0.050	ND	77	81	63-137	5.85	20
t-Butyl alcohol (TBA)	0.139	0.142	0.20	ND	69	71	41-135	2.68	20
Chlorobenzene	0.0361	0.0385	0.050	ND	72,F1	77	77-121	6.30	20
1,2-Dibromoethane (EDB)	0.0329	0.0345	0.050	ND	66,F1	69	67-119	4.79	20
1,2-Dichloroethane (1,2-DCA)	0.0354	0.0373	0.050	ND	71	75	58-135	5.10	20
1,1-Dichloroethene	0.0350	0.0379	0.050	ND	70	76	42-145	8.04	20
Diisopropyl ether (DIPE)	0.0374	0.0390	0.050	ND	75	78	52-129	4.14	20
Ethyl tert-butyl ether (ETBE)	0.0359	0.0374	0.050	ND	72	75	53-125	3.86	20
Methyl-t-butyl ether (MTBE)	0.0332	0.0346	0.050	ND	66	69	58-122	3.91	20
Toluene	0.0398	0.0417	0.050	ND	80	83	76-130	4.81	20
Trichloroethene	0.0370	0.0394	0.050	ND	74	79	72-132	6.24	20
Surrogate Recovery									
Dibromofluoromethane	0.112	0.112	0.12		90	89	70-130	0.0830	20
Toluene-d8	0.139	0.137	0.12		111	110	70-130	1.13	20
4-BFB	0.0109	0.0115	0.012		87	92	70-130	5.64	20
Benzene-d6	0.0825	0.0867	0.10		82	87	60-140	5.02	20
Ethylbenzene-d10	0.0993	0.108	0.10		99	108	60-140	7.99	20
1,2-DCB-d4	0.0756	0.0792	0.10		76	79	60-140	4.59	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/6/16	**BatchID:**	127722
Date Analyzed:	10/10/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127722 1610107-153AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0450	0.0050	0.050	-	90	53-116
Benzene	ND	0.0530	0.0050	0.050	-	106	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.192	0.050	0.20	-	96	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0532	0.0050	0.050	-	106	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0515	0.0040	0.050	-	103	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0509	0.0040	0.050	-	102	58-135
1,1-Dichloroethene	ND	0.0541	0.0050	0.050	-	108	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/6/16	**BatchID:**	127722
Date Analyzed:	10/10/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127722 1610107-153AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0537	0.0050	0.050	-	107	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0543	0.0050	0.050	-	109	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0538	0.0050	0.050	-	108	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0590	0.0050	0.050	-	118	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0570	0.0050	0.050	-	114	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/6/16	**BatchID:**	127722
Date Analyzed:	10/10/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127722 1610107-153AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.118	0.124		0.12	94	100	70-130
Toluene-d8	0.137	0.143		0.12	110	114	70-130
4-BFB	0.0128	0.0125		0.012	102	100	70-130
Benzene-d6	0.101	0.103		0.10	101	103	60-140
Ethylbenzene-d10	0.112	0.118		0.10	112	118	60-140
1,2-DCB-d4	0.0846	0.0971		0.10	85	97	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0402	0.0392	0.050	ND	80	78	53-116	2.49	20
Benzene	0.0487	0.0461	0.050	ND	97	92	63-137	5.37	20
t-Butyl alcohol (TBA)	0.168	0.169	0.20	ND	84	85	41-135	0.621	20
Chlorobenzene	0.0473	0.0456	0.050	ND	95	91	77-121	3.68	20
1,2-Dibromoethane (EDB)	0.0451	0.0430	0.050	ND	90	86	67-119	4.73	20
1,2-Dichloroethane (1,2-DCA)	0.0451	0.0434	0.050	ND	90	87	58-135	3.90	20
1,1-Dichloroethene	0.0483	0.0468	0.050	ND	97	94	42-145	3.15	20
Diisopropyl ether (DIPE)	0.0484	0.0460	0.050	ND	97	92	52-129	5.12	20
Ethyl tert-butyl ether (ETBE)	0.0484	0.0464	0.050	ND	97	93	53-125	4.45	20
Methyl-t-butyl ether (MTBE)	0.0472	0.0457	0.050	ND	94	91	58-122	3.23	20
Toluene	0.0535	0.0488	0.050	ND	107	98	76-130	9.11	20
Trichloroethene	0.0515	0.0491	0.050	ND	103	98	72-132	4.65	20
Surrogate Recovery									
Dibromofluoromethane	0.121	0.123	0.12		97	98	70-130	1.01	20
Toluene-d8	0.142	0.136	0.12		114	109	70-130	4.49	20
4-BFB	0.0120	0.0130	0.012		96	104	70-130	7.47	20
Benzene-d6	0.0947	0.0897	0.10		95	90	60-140	5.40	20
Ethylbenzene-d10	0.106	0.0990	0.10		106	99	60-140	6.76	20
1,2-DCB-d4	0.0887	0.0844	0.10		89	84	60-140	4.98	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	9/30/16	**BatchID:**	127440
Date Analyzed:	9/30/16	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127440 1609D84-002AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.27	0.25	5	-	85	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	4.72	0.25	5	-	94	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	4.45	0.25	5	-	89	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	3.86	0.25	5	-	77	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	9/30/16	**BatchID:**	127440
Date Analyzed:	9/30/16	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127440 1609D84-002AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	4.66	0.25	5	-	93	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.22	1.3	5	-	84	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	3.77	0.25	5	-	75	47-108
Pentachlorophenol	ND	5.50	1.3	5	-	110	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.10	0.25	5	-	82	49-107
Pyrene	ND	5.27	0.25	5	-	105	55-124
1,2,4-Trichlorobenzene	ND	4.63	0.25	5	-	93	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 9/30/16
Date Analyzed: 9/30/16
Instrument: GC21
Matrix: Soil
Project: SCVWD-IPR

WorkOrder: 1609D47
BatchID: 127440
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg
Sample ID: MB/LCS-127440
1609D84-002AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	6.12	4.88		5	122	98	47-125
Phenol-d5	5.49	4.39		5	110	88	45-117
Nitrobenzene-d5	5.15	4.44		5	103	89	39-121
2-Fluorobiphenyl	5.02	4.35		5	100	87	35-120
2,4,6-Tribromophenol	4.40	4.49		5	88	90	32-111
4-Terphenyl-d14	5.94	4.80		5	119	96	32-128

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<40	NR	NR	-	NR	
4-Chloro-3-methylphenol	NR	NR		ND<40	NR	NR	-	NR	
2-Chlorophenol	NR	NR		ND<40	NR	NR	-	NR	
1,4-Dichlorobenzene	NR	NR		ND<40	NR	NR	-	NR	
2,4-Dinitrotoluene	NR	NR		ND<40	NR	NR	-	NR	
4-Nitrophenol	NR	NR		ND<210	NR	NR	-	NR	
N-Nitrosodi-n-propylamine	NR	NR		ND<40	NR	NR	-	NR	
Pentachlorophenol	NR	NR		ND<210	NR	NR	-	NR	
Phenol	NR	NR		ND<40	NR	NR	-	NR	
Pyrene	NR	NR		ND<40	NR	NR	-	NR	
1,2,4-Trichlorobenzene	NR	NR		ND<40	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	
Phenol-d5	NR	NR			NR	NR	-	NR	
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.79	0.25	5	-	96	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	5.37	0.25	5	-	107	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	5.33	0.25	5	-	107	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.33	0.25	5	-	87	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	5.21	0.25	5	-	104	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.34	1.3	5	-	87	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.95	0.25	5	-	99	47-108
Pentachlorophenol	ND	5.48	1.3	5	-	110	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.82	0.25	5	-	96	49-107
Pyrene	ND	5.45	0.25	5	-	109	55-124
1,2,4-Trichlorobenzene	ND	5.06	0.25	5	-	101	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.36	5.47		5	107	109	47-125
Phenol-d5	4.77	4.98		5	95	100	45-117
Nitrobenzene-d5	4.67	5.05		5	93	101	39-121
2-Fluorobiphenyl	4.16	4.58		5	83	92	35-120
2,4,6-Tribromophenol	3.90	4.26		5	78	85	32-111
4-Terphenyl-d14	4.22	4.49		5	84	90	32-128

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<10	NR	NR	-	NR	
4-Chloro-3-methylphenol	NR	NR		ND<10	NR	NR	-	NR	
2-Chlorophenol	NR	NR		ND<10	NR	NR	-	NR	
1,4-Dichlorobenzene	NR	NR		ND<10	NR	NR	-	NR	
2,4-Dinitrotoluene	NR	NR		ND<10	NR	NR	-	NR	
4-Nitrophenol	NR	NR		ND<52	NR	NR	-	NR	
N-Nitrosodi-n-propylamine	NR	NR		ND<10	NR	NR	-	NR	
Pentachlorophenol	NR	NR		ND<52	NR	NR	-	NR	
Phenol	NR	NR		ND<10	NR	NR	-	NR	
Pyrene	NR	NR		ND<10	NR	NR	-	NR	
1,2,4-Trichlorobenzene	NR	NR		ND<10	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	
Phenol-d5	NR	NR			NR	NR	-	NR	
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	

_______ QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130116
Date Analyzed:	11/21/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130116 1611655-001DMS/MSD

QC Summary Report for E350.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.30	0.10	4	-	107	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	3.81	4.08	4	ND	95	102	88-113	7.01	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130239
Date Analyzed:	11/22/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130239

QC Summary Report for E350.1

Analyte	MB Result	RL			
Ammonia, total as N	ND	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ammonia, total as N	3.81	3.85	4	95	96	88-113	1.26	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130218
Date Analyzed:	11/22/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	SCVWD-IPR	**Sample ID:**	MB-130218

QC Summary Report for Alkalinity (Leachate)

Analyte	MB Result	RL			
Total Alkalinity	4.10	1.00	-	-	-
Carbonate	ND	1.00	-	-	-
Bicarbonate	4.10	1.00	-	-	-
Hydroxide	ND	1.00	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/28/16	**BatchID:**	130424
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130424

QC Summary Report for SM4500-Cl G

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.04	0.040	1	-	104	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/28/16	**BatchID:**	130425
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130425

QC Summary Report for SM4500-Cl G

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.02	0.040	1	-	102	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/28/16	**BatchID:**	130426
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130426

QC Summary Report for SM4500-Cl G

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.05	0.040	1	-	105	80-120

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130174
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate	**Unit:**	mg DO/L @ °C
Project:	SCVWD-IPR		

QC Summary Report for Dissolved Oxygen

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609C37-002C	8.74 @ 22.2°C	1	8.75 @ 22.2°C	1	0.01	0.05

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130175
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate	**Unit:**	mg DO/L @ °C
Project:	SCVWD-IPR		

QC Summary Report for Dissolved Oxygen

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609D47-003C	8.79 @ 22.4°C	1	8.77 @ 22.4°C	1	0.02	0.05

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130176
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate	**Unit:**	mg DO/L @ °C
Project:	SCVWD-IPR		

QC Summary Report for Dissolved Oxygen

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609D47-008C	8.55 @ 22.0°C	1	8.54 @ 22.0°C	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/14/16	**BatchID:**	128438
Date Analyzed:	10/21/16	**Extraction Method:**	TM-7
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB-128438

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	-	200	-	-	-	-
Arsenic	ND	-	2.0	-	-	-	-
Calcium	ND	-	400	-	-	-	-
Chromium	ND	-	2.0	-	-	-	-
Copper	ND	-	2.0	-	-	-	-
Iron	ND	-	80	-	-	-	-
Lead	ND	-	2.0	-	-	-	-
Magnesium	ND	-	80	-	-	-	-
Manganese	ND	-	20	-	-	-	-
Mercury	ND	-	0.050	-	-	-	-
Selenium	ND	-	0.50	-	-	-	-
Uranium	ND	-	2.0	-	-	-	-
Zinc	ND	-	20	-	-	-	-

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/22/16
Date Analyzed: 11/30/16
Instrument: ICP-MS2
Matrix: Soil
Project: SCVWD-IPR

WorkOrder: 1609D47
BatchID: 130211
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-130211

QC Summary Report for Metals (Leachate)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	18.4	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	0.0444	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	1.04	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	21.3	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.0050	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130211
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130211

QC Summary Report for Metals (Leachate)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.528	0.525	0.50	106	105	75-125	0.664	20
Antimony	0.0534	0.0541	0.050	107	108	75-125	1.40	20
Arsenic	0.0513	0.0520	0.050	103	104	75-125	1.49	20
Barium	0.514	0.516	0.50	103	103	75-125	0	20
Beryllium	0.0516	0.0517	0.050	103	103	75-125	0	20
Cadmium	0.0510	0.0518	0.050	102	104	75-125	1.54	20
Calcium	23.6	23.9	5	472, F2	478, F2	75-125	1.31	20
Chromium	0.0518	0.0516	0.050	104	103	75-125	0.309	20
Cobalt	0.0466	0.0513	0.050	93	103	75-125	9.70	20
Copper	0.0519	0.0505	0.050	104	101	75-125	2.79	20
Iron	5.08	5.10	5	102	102	75-125	0	20
Lead	0.0512	0.0520	0.050	102	104	75-125	1.63	20
Lithium	0.0500	0.0503	0.050	100	101	75-125	0.599	20
Magnesium	5.32	5.31	5	106	106	75-125	0	20
Manganese	5.10	5.15	5	102	103	75-125	0.936	20
Mercury	0.00137	0.00138	0.0012	110	110	75-125	0	20
Molybdenum	0.0531	0.0537	0.050	106	107	75-125	1.10	20
Nickel	0.0502	0.0507	0.050	100	101	75-125	0.991	20
Potassium	6.21	6.25	5	124	125	75-125	0.530	20
Selenium	0.0514	0.0523	0.050	103	105	75-125	1.79	20
Silver	0.0514	0.0524	0.050	103	105	75-125	1.93	20
Sodium	26.4	26.8	5	529, F2	537, F2	75-125	1.54	20
Strontium	0.513	0.520	0.50	103	104	75-125	1.45	20
Thallium	0.0512	0.0511	0.050	102	102	75-125	0	20
Uranium	0.0523	0.0524	0.050	105	105	75-125	0	20
Vanadium	0.0520	0.0513	0.050	104	103	75-125	1.37	20
Zinc	0.503	0.511	0.50	101	102	75-125	1.50	20

(Cont.)

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/30/16
Instrument: ICP-MS2
Matrix: Soil
Project: SCVWD-IPR

WorkOrder: 1609D47
BatchID: 130300
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L
Sample ID: MB/LCS/LCSD-130300

QC Summary Report for Metals (Leachate)

Analyte	MB Result	RL			
Aluminum	ND	0.050	-	-	-
Antimony	ND	0.00050	-	-	-
Arsenic	ND	0.00050	-	-	-
Barium	ND	0.0050	-	-	-
Beryllium	ND	0.00050	-	-	-
Cadmium	ND	0.00025	-	-	-
Calcium	18.3	0.10	-	-	-
Chromium	ND	0.00050	-	-	-
Cobalt	ND	0.00050	-	-	-
Copper	ND	0.00050	-	-	-
Iron	ND	0.020	-	-	-
Lead	ND	0.00050	-	-	-
Lithium	ND	0.0050	-	-	-
Magnesium	0.0382	0.020	-	-	-
Manganese	ND	0.020	-	-	-
Mercury	ND	0.000050	-	-	-
Molybdenum	ND	0.00050	-	-	-
Nickel	ND	0.00050	-	-	-
Potassium	1.05	0.020	-	-	-
Selenium	ND	0.00050	-	-	-
Silver	ND	0.00050	-	-	-
Sodium	24.6	0.10	-	-	-
Strontium	ND	0.020	-	-	-
Thallium	ND	0.00050	-	-	-
Uranium	ND	0.00050	-	-	-
Vanadium	ND	0.00050	-	-	-
Zinc	ND	0.0050	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130300
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130300

QC Summary Report for Metals (Leachate)

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aluminum	0.520	0.513	0.50	104	103	75-125	1.35	20
Antimony	0.0539	0.0524	0.050	108	105	75-125	2.84	20
Arsenic	0.0520	0.0518	0.050	104	104	75-125	0	20
Barium	0.510	0.500	0.50	102	100	75-125	1.96	20
Beryllium	0.0516	0.0499	0.050	103	100	75-125	3.23	20
Cadmium	0.0511	0.0508	0.050	102	102	75-125	0	20
Calcium	23.8	23.1	5	476, F2	462, F2	75-125	2.98	20
Chromium	0.0513	0.0510	0.050	103	102	75-125	0.723	20
Cobalt	0.0481	0.0502	0.050	96	100	75-125	4.33	20
Copper	0.0499	0.0500	0.050	100	100	75-125	0	20
Iron	5.00	4.98	5	100	100	75-125	0	20
Lead	0.0512	0.0509	0.050	102	102	75-125	0	20
Lithium	0.0497	0.0485	0.050	99	97	75-125	2.49	20
Magnesium	5.28	5.19	5	106	104	75-125	1.85	20
Manganese	5.12	5.03	5	102	101	75-125	1.75	20
Mercury	0.00142	0.00136	0.0012	114	109	75-125	4.09	20
Molybdenum	0.0537	0.0525	0.050	107	105	75-125	2.20	20
Nickel	0.0500	0.0499	0.050	100	100	75-125	0	20
Potassium	6.24	6.15	5	125	123	75-125	1.52	20
Selenium	0.0518	0.0511	0.050	104	102	75-125	1.44	20
Silver	0.0516	0.0510	0.050	103	102	75-125	1.07	20
Sodium	30.3	29.3	5	605, F2	586, F2	75-125	3.32	20
Strontium	0.510	0.506	0.50	102	101	75-125	0.709	20
Thallium	0.0504	0.0509	0.050	101	102	75-125	0.928	20
Uranium	0.0512	0.0509	0.050	102	102	75-125	0	20
Vanadium	0.0514	0.0507	0.050	103	101	75-125	1.53	20
Zinc	0.500	0.499	0.50	100	100	75-125	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130321
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate	**Unit:**	mV vs. NHE
Project:	SCVWD-IPR		

QC Summary Report for ORP (MAI)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	291 @ 22.0°C	1	285 @ 22.0°C	1	1.9	<10

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130322
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate	**Unit:**	mV vs. NHE
Project:	SCVWD-IPR		

QC Summary Report for ORP (MAI)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-003C	286 @ 22.3°C	1	284 @ 22.3°C	1	0.61	<10

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130323
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate	**Unit:**	mV vs. NHE
Project:	SCVWD-IPR		

QC Summary Report for ORP (MAI)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	295 @ 21.8°C	1	293 @ 21.9°C	1	0.87	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130138
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for pH

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609C37-002C	8.09	1	8.07	1	0.02	0.05

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130140
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for pH

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609D47-003C	7.83	1	7.83	1	0	0.05

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130144
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for pH

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609D47-008C	7.75	1	7.75	1	0	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130206
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130206

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	1.00	1.03	1	100	103	80-120	2.56	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130296
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130296

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	0.974	0.974	1	97	97	80-120	0	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130484
Date Analyzed:	11/22/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	235	1	235	1	0	<2

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130485
Date Analyzed:	11/22/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-003C	211	1	211	1	0	<2

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/2/16	**BatchID:**	130486
Date Analyzed:	11/2/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	227	1	227	1	0	<2

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/3/16	**BatchID:**	127525
Date Analyzed:	10/3/16	**Extraction Method:**	SM2510Bm-1997
Instrument:	WetChem	**Analytical Method:**	SM2510Bm-1997
Matrix:	Soil	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWD-IPR		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-001A	53.9	1	54.1	1	0.37	<5

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	10/21/16	**BatchID:**	128927
Date Analyzed:	11/1/16	**Extraction Method:**	TM-7
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWD-IPR	**Sample ID:**	MB-128927

QC Summary Report for Silicon

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	-	15	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130209
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130209

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.461	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.984	1.01	1	98	101	80-120	2.62	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130298
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130298

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.992	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.954	0.984	1	95	98	80-120	3.14	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	12/2/16	**BatchID:**	130710
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130710 1609D47-002DMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.502	0.050	0.50	-	100	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.456	0.456	0.50	ND	91	91	80-120	0	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	12/2/16	**BatchID:**	130711
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S⁻² D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130711 1609D47-003CMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.509	0.050	0.50	-	102	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.431	0.431	0.50	ND	86	86	80-120	0	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	12/2/16	**BatchID:**	130712
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130712 1609E06-004CMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.511	0.050	0.50	-	102	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.435	0.435	0.50	ND	87	87	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130130
Date Analyzed:	11/22/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130130 1611940-001DMS/MSD

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	10.9	0.30	12	-	91	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	12.9	12.5	12	1.9	92	88	50-132	3.53	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130201
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130201

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	RL			
TKN as N	ND	0.30	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TKN as N	12.0	12.1	12	100	101	90-110	0.832	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/22/16	**BatchID:**	130203
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS/LCSD-130203

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	RL			
TKN as N	ND	0.30	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TKN as N	11.4	12.2	12	95	102	90-110	7.53	20

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/23/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWD-IPR
WorkOrder: 1609D47
BatchID: 130328
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report for SM2130B (Turbidity)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609C37-002C	0.271	1	0.268	1	1.11	<10

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/23/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWD-IPR
WorkOrder: 1609D47
BatchID: 130329
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report for SM2130B (Turbidity)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-003C	0.285	1	0.274	1	3.94	<10

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130330
Date Analyzed:	11/23/16	**Extraction Method:**	SM2130 B-2001
Instrument:	WetChem	**Analytical Method:**	SM2130 B-2001
Matrix:	Leachate	**Unit:**	NTU
Project:	SCVWD-IPR		

QC Summary Report for SM2130B (Turbidity)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	0.388	1	0.419	1	7.68	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130134
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130134

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.4	0.70	50	-	101	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130136
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130136

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.3	0.70	50	-	101	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/21/16	**BatchID:**	130137
Date Analyzed:	11/21/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130137

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.5	0.70	50	-	101	80-120

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130278
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130278

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	39.5	2.6	36.7	-	108	80-120

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609D47
Date Prepared:	11/23/16	**BatchID:**	130279
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWD-IPR	**Sample ID:**	MB/LCS-130279

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	40.4	2.6	36.7	-	110	80-120

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609D47-001	S-4 17.0 Ft Chem Dose 1	Soil	9/28/2016 08:00	☐	C		C	C				C	C	C	C	C
1609D47-001	S-4 17.0 Ft Chem Dose 2	Soil	9/28/2016 08:00	☐	D		D	D				D	D	D	D	D
1609D47-001	Sonic-4 @17.0 Ft	Soil	9/28/2016 08:00	☐		A			A							
1609D47-001	Sonic-4 @17.0 Ft HH	Soil	9/28/2016 08:00	☐												
1609D47-002	S-4 23.0 Ft Chem Dose 1	Soil	9/28/2016 08:20	☐	C		C	C				C	C	C	C	C
1609D47-002	S-4 23.0 Ft Chem Dose 2	Soil	9/28/2016 08:20	☐	D		D	D				D	D	D	D	D
1609D47-002	Sonic-4 @23.0 Ft	Soil	9/28/2016 08:20	☐		A			A							
1609D47-002	Sonic-4 @23.0 Ft HH	Soil	9/28/2016 08:20	☐												
1609D47-003	S-4 50.0 Ft Chem Dose 1	Soil	9/28/2016 10:00	☐	C		C	C				C	C	C	C	C
1609D47-003	S-4 50.0 Ft Chem Dose 2	Soil	9/28/2016 10:00	☐	D		D	D				D	D	D	D	D
1609D47-003	Sonic-4 @ 50.0 Ft	Soil	9/28/2016 10:00	☐		A			A							
1609D47-003	Sonic-4 @ 50.0 Ft HH	Soil	9/28/2016 10:00	☐												
1609D47-004	S-4 65.0 Ft Chem Dose 1	Soil	9/28/2016 10:50	☐	C		C	C				C	C	C	C	C
1609D47-004	S-4 65.0 Ft Chem Dose 2	Soil	9/28/2016 10:50	☐	D		D	D				D	D	D	D	D
1609D47-004	Sonic-4 @65.0 Ft	Soil	9/28/2016 10:50	☐		A			A							

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(C)_Leachate

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609D47-004	Sonic-4 @65.0 Ft HH	Soil	9/28/2016 10:50	☐												
1609D47-005	S-4 85.0 Ft Chem Dose 1	Soil	9/28/2016 12:15	☐	C		C	C				C	C	C	C	C
1609D47-005	S-4 85.0 Ft Chem Dose 2	Soil	9/28/2016 12:15	☐	D		D	D				D	D	D	D	D
1609D47-005	Sonic-4 @ 85.0 Ft	Soil	9/28/2016 12:15	☐		A			A							
1609D47-005	Sonic-4 @ 85.0 Ft HH	Soil	9/28/2016 12:15	☐												
1609D47-006	S-4 95.0 Ft Chem Dose 1	Soil	9/28/2016 12:30	☐	C		C	C				C	C	C	C	C
1609D47-006	S-4 95.0 Ft Chem Dose 2	Soil	9/28/2016 12:30	☐	D		D	D				D	D	D	D	D
1609D47-006	Sonic-4 @ 95.0 Ft	Soil	9/28/2016 12:30	☐		A			A							
1609D47-006	Sonic-4 @ 95.0 Ft HH	Soil	9/28/2016 12:30	☐												
1609D47-007	S-4 110.0 Ft Chem Dose 1	Soil	9/28/2016 13:30	☐	C		C	C				C	C	C	C	C
1609D47-007	S-4 110.0 Ft Chem Dose 2	Soil	9/28/2016 13:30	☐	D		D	D				D	D	D	D	D
1609D47-007	Sonic-4 @ 110.0 Ft	Soil	9/28/2016 13:30	☐		A			A							
1609D47-007	Sonic-4 @ 110.0 Ft HH	Soil	9/28/2016 13:30	☐												
1609D47-008	S-4 125 Ft Chem Dose 1	Soil	9/28/2016 14:00	☐	C		C	C				C	C	C	C	C
1609D47-008	S-4 125 Ft Chem Dose 2	Soil	9/28/2016 14:00	☐	D		D	D				D	D	D	D	D

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(C)_Leachate

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609D47-008	Sonic-4 @ 125 Ft	Soil	9/28/2016 14:00	☐		A			A							
1609D47-008	Sonic-4 @ 125 Ft HH	Soil	9/28/2016 14:00	☐												
1609D47-009	S-4 155 Ft Chem Dose 1	Soil	9/28/2016 16:00	☐	C		C	C				C	C	C	C	C
1609D47-009	S-4 155 Ft Chem Dose 2	Soil	9/28/2016 16:00	☐	D		D	D				D	D	D	D	D
1609D47-009	Sonic-4 @ 155 Ft	Soil	9/28/2016 16:00	☐		A			A							
1609D47-009	Sonic-4 @ 155 Ft HH	Soil	9/28/2016 16:00	☐												
1609D47-010	Sonic-4 170-17.5	Soil	9/28/2016 08:00	☐						A	A					
1609D47-011	Sonic-4 27.0-27.5	Soil	9/28/2016 08:30	☐						A	A					
1609D47-012	Sonic-4 47.5-48.0	Soil	9/28/2016 10:00	☐						A	A					
1609D47-013	Sonic-4 65.0	Soil	9/28/2016 10:50	☐						A	A					
1609D47-014	Sonic-4 84.5-85.0	Soil	9/28/2016 12:15	☐						A	A					
1609D47-015	Sonic-4 94.5-95.0	Soil	9/28/2016 12:30	☐						A	A					
1609D47-016	Sonic-4 99.5-110.0	Soil	9/28/2016 13:30	☐						A	A					
1609D47-017	Sonic-4 124.5-125.0	Soil	9/28/2016 14:00	☐						A	A					
1609D47-018	Sonic-4 155.0-155.5	Soil	9/28/2016 16:00	☐						A	A					

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(C)_Leachate

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 3

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609D47-001	S-4 17.0 Ft Chem Dose 1	Soil	9/28/2016 08:00	☐	C		C	C	C	C	C			C	C	C
1609D47-001	S-4 17.0 Ft Chem Dose 2	Soil	9/28/2016 08:00	☐	D		D	D	D	D	D			D	D	D
1609D47-001	Sonic-4 @17.0 Ft	Soil	9/28/2016 08:00	☐								A				
1609D47-001	Sonic-4 @17.0 Ft HH	Soil	9/28/2016 08:00	☐		B							B			
1609D47-002	S-4 23.0 Ft Chem Dose 1	Soil	9/28/2016 08:20	☐	C		C	C	C	C	C			C	C	C
1609D47-002	S-4 23.0 Ft Chem Dose 2	Soil	9/28/2016 08:20	☐	D		D	D	D	D	D			D	D	D
1609D47-002	Sonic-4 @23.0 Ft	Soil	9/28/2016 08:20	☐								A				
1609D47-002	Sonic-4 @23.0 Ft HH	Soil	9/28/2016 08:20	☐		B							B			
1609D47-003	S-4 50.0 Ft Chem Dose 1	Soil	9/28/2016 10:00	☐	C		C	C	C	C	C			C	C	C
1609D47-003	S-4 50.0 Ft Chem Dose 2	Soil	9/28/2016 10:00	☐	D		D	D	D	D	D			D	D	D
1609D47-003	Sonic-4 @ 50.0 Ft	Soil	9/28/2016 10:00	☐								A				
1609D47-003	Sonic-4 @ 50.0 Ft HH	Soil	9/28/2016 10:00	☐		B							B			
1609D47-004	S-4 65.0 Ft Chem Dose 1	Soil	9/28/2016 10:50	☐	C		C	C	C	C	C			C	C	C
1609D47-004	S-4 65.0 Ft Chem Dose 2	Soil	9/28/2016 10:50	☐	D		D	D	D	D	D			D	D	D
1609D47-004	Sonic-4 @65.0 Ft	Soil	9/28/2016 10:50	☐								A				

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609D47-004	Sonic-4 @65.0 Ft HH	Soil	9/28/2016 10:50	☐		B							B			
1609D47-005	S-4 85.0 Ft Chem Dose 1	Soil	9/28/2016 12:15	☐	C		C	C	C	C	C			C	C	C
1609D47-005	S-4 85.0 Ft Chem Dose 2	Soil	9/28/2016 12:15	☐	D		D	D	D	D	D			D	D	D
1609D47-005	Sonic-4 @ 85.0 Ft	Soil	9/28/2016 12:15	☐								A				
1609D47-005	Sonic-4 @ 85.0 Ft HH	Soil	9/28/2016 12:15	☐		B							B			
1609D47-006	S-4 95.0 Ft Chem Dose 1	Soil	9/28/2016 12:30	☐	C		C	C	C	C	C			C	C	C
1609D47-006	S-4 95.0 Ft Chem Dose 2	Soil	9/28/2016 12:30	☐	D		D	D	D	D	D			D	D	D
1609D47-006	Sonic-4 @ 95.0 Ft	Soil	9/28/2016 12:30	☐								A				
1609D47-006	Sonic-4 @ 95.0 Ft HH	Soil	9/28/2016 12:30	☐		B							B			
1609D47-007	S-4 110.0 Ft Chem Dose 1	Soil	9/28/2016 13:30	☐	C		C	C	C	C	C			C	C	C
1609D47-007	S-4 110.0 Ft Chem Dose 2	Soil	9/28/2016 13:30	☐	D		D	D	D	D	D			D	D	D
1609D47-007	Sonic-4 @ 110.0 Ft	Soil	9/28/2016 13:30	☐								A				
1609D47-007	Sonic-4 @ 110.0 Ft HH	Soil	9/28/2016 13:30	☐		B							B			
1609D47-008	S-4 125 Ft Chem Dose 1	Soil	9/28/2016 14:00	☐	C		C	C	C	C	C			C	C	C
1609D47-008	S-4 125 Ft Chem Dose 2	Soil	9/28/2016 14:00	☐	D		D	D	D	D	D			D	D	D

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609D47-008	Sonic-4 @ 125 Ft	Soil	9/28/2016 14:00	☐								A				
1609D47-008	Sonic-4 @ 125 Ft HH	Soil	9/28/2016 14:00	☐		B							B			
1609D47-009	S-4 155 Ft Chem Dose 1	Soil	9/28/2016 16:00	☐	C		C	C	C	C	C			C	C	C
1609D47-009	S-4 155 Ft Chem Dose 2	Soil	9/28/2016 16:00	☐	D		D	D	D	D	D			D	D	D
1609D47-009	Sonic-4 @ 155 Ft	Soil	9/28/2016 16:00	☐								A				
1609D47-009	Sonic-4 @ 155 Ft HH	Soil	9/28/2016 16:00	☐		B							B			
1609D47-010	Sonic-4 170-17.5	Soil	9/28/2016 08:00	☐												
1609D47-011	Sonic-4 27.0-27.5	Soil	9/28/2016 08:30	☐												
1609D47-012	Sonic-4 47.5-48.0	Soil	9/28/2016 10:00	☐												
1609D47-013	Sonic-4 65.0	Soil	9/28/2016 10:50	☐												
1609D47-014	Sonic-4 84.5-85.0	Soil	9/28/2016 12:15	☐												
1609D47-015	Sonic-4 94.5-95.0	Soil	9/28/2016 12:30	☐												
1609D47-016	Sonic-4 99.5-110.0	Soil	9/28/2016 13:30	☐												
1609D47-017	Sonic-4 124.5-125.0	Soil	9/28/2016 14:00	☐												
1609D47-018	Sonic-4 155.0-155.5	Soil	9/28/2016 16:00	☐												

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609D47-001	S-4 17.0 Ft Chem Dose 1	Soil	9/28/2016 08:00	☐	C											
1609D47-001	S-4 17.0 Ft Chem Dose 2	Soil	9/28/2016 08:00	☐	D											
1609D47-001	Sonic-4 @17.0 Ft	Soil	9/28/2016 08:00	☐												
1609D47-001	Sonic-4 @17.0 Ft HH	Soil	9/28/2016 08:00	☐												
1609D47-002	S-4 23.0 Ft Chem Dose 1	Soil	9/28/2016 08:20	☐	C											
1609D47-002	S-4 23.0 Ft Chem Dose 2	Soil	9/28/2016 08:20	☐	D											
1609D47-002	Sonic-4 @23.0 Ft	Soil	9/28/2016 08:20	☐												
1609D47-002	Sonic-4 @23.0 Ft HH	Soil	9/28/2016 08:20	☐												
1609D47-003	S-4 50.0 Ft Chem Dose 1	Soil	9/28/2016 10:00	☐	C											
1609D47-003	S-4 50.0 Ft Chem Dose 2	Soil	9/28/2016 10:00	☐	D											
1609D47-003	Sonic-4 @ 50.0 Ft	Soil	9/28/2016 10:00	☐												
1609D47-003	Sonic-4 @ 50.0 Ft HH	Soil	9/28/2016 10:00	☐												
1609D47-004	S-4 65.0 Ft Chem Dose 1	Soil	9/28/2016 10:50	☐	C											
1609D47-004	S-4 65.0 Ft Chem Dose 2	Soil	9/28/2016 10:50	☐	D											
1609D47-004	Sonic-4 @65.0 Ft	Soil	9/28/2016 10:50	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1609D47-004	Sonic-4 @65.0 Ft HH	Soil	9/28/2016 10:50	☐												
1609D47-005	S-4 85.0 Ft Chem Dose 1	Soil	9/28/2016 12:15	☐	C											
1609D47-005	S-4 85.0 Ft Chem Dose 2	Soil	9/28/2016 12:15	☐	D											
1609D47-005	Sonic-4 @ 85.0 Ft	Soil	9/28/2016 12:15	☐												
1609D47-005	Sonic-4 @ 85.0 Ft HH	Soil	9/28/2016 12:15	☐												
1609D47-006	S-4 95.0 Ft Chem Dose 1	Soil	9/28/2016 12:30	☐	C											
1609D47-006	S-4 95.0 Ft Chem Dose 2	Soil	9/28/2016 12:30	☐	D											
1609D47-006	Sonic-4 @ 95.0 Ft	Soil	9/28/2016 12:30	☐												
1609D47-006	Sonic-4 @ 95.0 Ft HH	Soil	9/28/2016 12:30	☐												
1609D47-007	S-4 110.0 Ft Chem Dose 1	Soil	9/28/2016 13:30	☐	C											
1609D47-007	S-4 110.0 Ft Chem Dose 2	Soil	9/28/2016 13:30	☐	D											
1609D47-007	Sonic-4 @ 110.0 Ft	Soil	9/28/2016 13:30	☐												
1609D47-007	Sonic-4 @ 110.0 Ft HH	Soil	9/28/2016 13:30	☐												
1609D47-008	S-4 125 Ft Chem Dose 1	Soil	9/28/2016 14:00	☐	C											
1609D47-008	S-4 125 Ft Chem Dose 2	Soil	9/28/2016 14:00	☐	D											

Test Legend:

1	TURBIDITY_Leachate	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 3 of 3

WorkOrder: 1609D47 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▨ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWD-IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/29/2016**
Date Logged: **09/29/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1609D47-008	Sonic-4 @ 125 Ft	Soil	9/28/2016 14:00	☐												
1609D47-008	Sonic-4 @ 125 Ft HH	Soil	9/28/2016 14:00	☐												
1609D47-009	S-4 155 Ft Chem Dose 1	Soil	9/28/2016 16:00	☐	C											
1609D47-009	S-4 155 Ft Chem Dose 2	Soil	9/28/2016 16:00	☐	D											
1609D47-009	Sonic-4 @ 155 Ft	Soil	9/28/2016 16:00	☐												
1609D47-009	Sonic-4 @ 155 Ft HH	Soil	9/28/2016 16:00	☐												
1609D47-010	Sonic-4 170-17.5	Soil	9/28/2016 08:00	☐												
1609D47-011	Sonic-4 27.0-27.5	Soil	9/28/2016 08:30	☐												
1609D47-012	Sonic-4 47.5-48.0	Soil	9/28/2016 10:00	☐												
1609D47-013	Sonic-4 65.0	Soil	9/28/2016 10:50	☐												
1609D47-014	Sonic-4 84.5-85.0	Soil	9/28/2016 12:15	☐												
1609D47-015	Sonic-4 94.5-95.0	Soil	9/28/2016 12:30	☐												
1609D47-016	Sonic-4 99.5-110.0	Soil	9/28/2016 13:30	☐												
1609D47-017	Sonic-4 124.5-125.0	Soil	9/28/2016 14:00	☐												
1609D47-018	Sonic-4 155.0-155.5	Soil	9/28/2016 16:00	☐												

Test Legend:

1	**TURBIDITY_Leachate**	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Alexandra Iniguez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609D47
Client Contact: Bill Motzer
QC Level: LEVEL 2
Contact's Email: bmotzer@toddengineers.com
Comments:
Date Logged: 9/29/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609D47-001A	Sonic-4 @17.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 8:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-002A	Sonic-4 @23.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 8:20	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-003A	Sonic-4 @ 50.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 10:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-004A	Sonic-4 @65.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 10:50	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-005A	Sonic-4 @ 85.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 12:15	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-006A	Sonic-4 @ 95.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 12:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	
1609D47-007A	Sonic-4 @ 110.0 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 13:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3$^-$>			☐		5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609D47
Client Contact: Bill Motzer
QC Level: LEVEL 2
Contact's Email: bmotzer@toddengineers.com
Comments:
Date Logged: 9/29/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609D47-008A	Sonic-4 @ 125 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 14:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3^->			☐		5 days		☐	
1609D47-009A	Sonic-4 @ 155 Ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/28/2016 16:00	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate as N, Nitrate as NO3^->			☐		5 days		☐	
1609D47-010A	Sonic-4 170-17.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 8:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-011A	Sonic-4 27.0-27.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 8:30	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-012A	Sonic-4 47.5-48.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 10:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-013A	Sonic-4 65.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 10:50	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-014A	Sonic-4 84.5-85.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 12:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-015A	Sonic-4 94.5-95.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 12:30	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWD-IPR
Work Order: 1609D47
Client Contact: Bill Motzer
QC Level: LEVEL 2
Contact's Email: bmotzer@toddengineers.com
Comments:
Date Logged: 9/29/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609D47-016A	Sonic-4 99.5-110.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 13:30	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-017A	Sonic-4 124.5-125.0	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 14:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609D47-018A	Sonic-4 155.0-155.5	Soil	SW8270C (SVOCs)	1	Brass tube 2.5"x6"	☐	9/28/2016 16:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES:

- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

General COC

MAI Work Order # 1609D47

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510 747-6920
Project Name/#: SCVWD IPR
Project Location: Page Ponds PO #
Sampler Signature: William E. Motzer

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HH Extraction	ClO_4, NO_3	SPLC Leachate*	VOC / Semi VOCs*															
SONIC-4 @ 17.0 ft.	09-28-16	0800	G	Soil	None	✓	✓	✓																
SONIC-4 @ 27.0 ft.	09-28-16	0820	G	Soil	None	✓	✓	✓																
SONIC-4 @ 50.0 ft	09-28-16	1000	G	Soil	None	✓	✓	✓																
SONIC-4 @ 65.0 ft	09-28-16	1050	G	Soil	None	✓	✓	✓																
SONIC-4 @ 85.0 ft	09-28-16	1215	G	Soil	None	✓	✓	✓																
SONIC-4 @ 95.0 ft	09-28-16	1230	G	Soil	None	✓	✓	✓																
SONIC-4 @ 110.0 ft	09-28-16	1330	G	Soil	None	✓	✓	✓																
SONIC 4 @ 125 ft	09-28-16	1400	G	Soil	None	✓	✓	✓																
SONIC 4 @ 175 ft	09-28-16	1600	G	Soil	None	✓	✓	✓																

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Comments / Instructions
* See instructions sent to lab

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	9/29/16	1433		9/29	1433
	9/29	1915		9/29/16	1915

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 1 of 2

General COC

MAI Work Order # 1609D47

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	✓	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format: GeoTracker EDF		PDF		EDD		Write On (DW)		EQuIS	

Report To: William E. Motzer   Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510 547 6920
Project Name/#: SCVWD-IPR
Project Location: Page Ponds   PO #
Sampler Signature: William C. Motzer

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HHExtraction *	ClO4, NO3 *	SPLC Leachator *	VOCs / SemiVOCs *
SONIC-4 17.0-17.5	09-28-16	0800	BT	Soil	None				✓
SONIC-4 27.0-27.5	09-28-16	0830	BT	Soil	None				✓
SONIC-4 47.5-48.0	09-28-16	1000	BT	Soil	None				✓
SONIC-4 65.0	09-28-16	1050	BT	Soil	None				✓
SONIC-4 84.5-85.0	09-28-16	1215	BT	Soil	None				✓
SONIC-4 94.5-95.0	09-28-16	1230	BT	Soil	None				✓
SONIC-4 99.5-110.0	09-28-16	1330	BT	Soil	None				✓
SONIC4 124.5-125.0	09-28-16	1400	BT	Soil	None				✓
SONIC4 155.0-155.5	09-28-16	1600	BT	Soil	NONE				✓

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
				9/29	1433
	9/29	1915		9/29/16	1915

Comments / Instructions
* See instructions sent to lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ____ °C Initials ____

Page 2 of 2

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **Todd Groundwater**
Project Name: **SCVWD-IPR**

WorkOrder №: **1609D47** Matrix: Soil
Carrier: Benjamin Yslas (MAI Courier)

Date and Time Received: **9/29/2016 19:15**
Date Logged: **9/29/2016**
Received by: Alexandra Iniguez
Logged by: Alexandra Iniguez

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	NA ☐
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 2.5°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

From:	Edwin Lin <ELin@toddgroundwater.com>
Sent:	Tuesday, November 08, 2016 9:38 AM
To:	Griselda Martinez; 'Rosa Venegas'
Cc:	'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject:	RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

Griselda Martinez

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. - Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

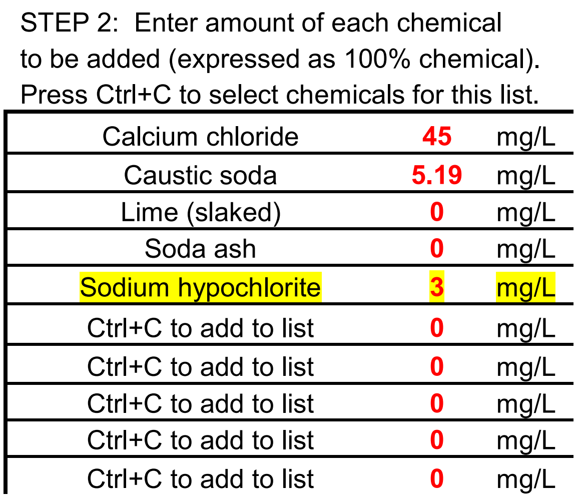
rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?



STEP 2: Enter amount of each chemical
to be added (expressed as 100% chemical).
Press Ctrl+C to select chemicals for this list.

Calcium chloride	**45**	mg/L
Caustic soda	**5.19**	mg/L
Lime (slaked)	**0**	mg/L
Soda ash	**0**	mg/L
Sodium hypochlorite	**3**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L
Ctrl+C to add to list	**0**	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609E06 **Amended:** 12/09/2016

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Bill Motzer
Project P.O.:
Project Name: SCVWO-1PR; McGlincey Ponds

Project Received: 09/30/2016

Analytical Report reviewed & approved for release on 12/09/2016 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033ORELAP

Glossary of Terms & Qualifier Definitions

Client:	Todd Groundwater
Project:	SCVWO-1PR; McGlincey Ponds
WorkOrder:	1609E06

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: SCVWO-1PR; McGlincey Ponds
WorkOrder: 1609E06

Analytical Qualifiers

B	analyte detected in the associated Method Blank and in the sample
S	surrogate spike recovery outside accepted recovery limits
c2	surrogate recovery outside of the control limits due to matrix interference.

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validated the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F3	the surrogate standard recovery and/or RPD is outside of acceptance limits.

Case Narrative

Client: Todd Groundwater
Project: SCVWO-1PR; McGlincey Ponds

Work Order: 1609E06
December 09, 2016

Langelier Index by SM2330B Calculations at 23 degrees C:

S-5 09 Ft Chem Dose 1; 1609E06-001C
Langelier Index =-1.175844201

S-5 09 Ft Chem Dose 2; 1609E06-001D
Langelier Index =-0.995756659

S-5 25 Ft Chem Dose 1; 1609E06-002C
Langelier Index =-1.138147745

S-5 25 Ft Chem Dose 2; 1609E06-002D
Langelier Index =-0.954476488

S-5 50 Ft Chem Dose 1; 1609E06-003C
Langelier Index =-1.030043702

S-5 50 Ft Chem Dose 2; 1609E06-003D
Langelier Index =-0.865626776

S-5 65 Ft Chem Dose 1; 1609E06-004C
Langelier Index =-0.996936096

S-5 65 Ft Chem Dose 2; 1609E06-004D
Langelier Index =-0.897258192

S-5 80 Ft Chem Dose 1; 1609E06-005C
Langelier Index =-1.070629594

S-5 80 Ft Chem Dose 2; 1609E06-005D
Langelier Index =-0.886361955

S-5 100 Ft Chem Dose 1; 1609E06-006C
Langelier Index =-1.06805086

S-5 100 Ft Chem Dose 2; 1609E06-006D
Langelier Index =-0.913373978

S-5 125 Ft Chem Dose 1; 1609E06-007C
Langelier Index =-0.869848731

S-5 125 Ft Chem Dose 2; 1609E06-007D
Langelier Index =-0.697692412

S-5 140 Ft Chem Dose 1; 1609E06-008C
Langelier Index =-1.021059629

S-5 140 Ft Chem Dose 2; 1609E06-008D

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1609E06
Project: SCVWO-1PR; McGlincey Ponds December 09, 2016

Langelier Index =-0.891622997

S-5 160 Ft Chem Dose 1; 1609E06-009C
Langelier Index =-0.986853501

S-5 160 Ft Chem Dose 2; 1609E06-009D
Langelier Index =-0.76617381

Angela Rydelius, Lab Manager

Case Narrative

Client:	Todd Groundwater	**Work Order:** 1609E06
Project:	SCVWO-1PR; McGlincey Ponds	December 08, 2016

Extraction Procedure

1. 160 gr: 800mL of leaching solution (1:5) was prepared in 1L HDPE containers for the client specified samples described via email (see email addendum_leaching procedure). Leaching procedure start and stop date: 11/10/2016-11/17/2016

Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.
3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leachate was centrifuged for 12hrs @ 1500 RPMs.
4. Leachate from each vial was filtered thru 0.45 micron filter.
5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analysis.

Angela Rydelius, Lab Manager

Case Narrative

Client: Todd Groundwater **Work Order:** 1609E06
Project: SCWO-1PR;McGlincey Ponds December 09, 2016

Leaching procedure:

Media Preparation

Two Leaching solutions were prepared (25L each) using the provided permeate water and chemical dosage specifications in table 1.

Table 1. Dosage Table

Leaching Solution	Chemical dose 1	Chemical dose 2
Chemicals	CaCl2 and NaOH	CaCl2 and Na2CO3
Dosage, mg/L	45/5.38	45/14.45

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target levels where provided by **HDR (**se email addendum_mediaprep). Results were reported and approved via email prior to the commencement of the study.

Table 2. Projected values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	0.5±	-0.09	-0.01

Table 3. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	Measured Value: CaCl2 and NaOH	Measured Value: CaCl2 and Na2CO3
Chemical Dose, mg/L		45/5.38	45/14.45
Alkalinity, mg/L as CaCO3	45	33	40.4
Hardness, mg/L as CaCO3	40	45	45
pH	6.5 – 8.5	8.52	8.7
TDS (based on conductivity)		109	115
LSI (SM 2330B) @ 23C	0.5±	-0.01	0.25

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00043**	0.00020	1	11/26/2016 11:52

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00031**	0.00020	1	11/26/2016 12:14

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**	0.00020	1	11/26/2016 12:35

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00050**	0.00020	1	11/26/2016 12:56

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0022**	0.00020	1	11/26/2016 13:17

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**IC2**	**130601**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0022**	0.00020	1	11/26/2016 13:39

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**IC2**	**130602**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00066**	0.00020	1	11/26/2016 14:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**IC2**	**130602**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00038**	0.00020	1	11/26/2016 15:04

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**IC2**	**130602**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00067**	0.00020	1	11/26/2016 15:25

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**IC2**	**130602**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00063**	0.00020	1	11/26/2016 15:47

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00056**		0.00020	1	12/01/2016 16:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00055**		0.00020	1	12/01/2016 17:04

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00039**		0.00020	1	12/01/2016 17:25

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00033**		0.00020	1	12/01/2016 18:08

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00027**		0.00020	1	12/01/2016 18:30

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00023**		0.00020	1	12/01/2016 18:51

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E218.6
Date Prepared:	12/1/16	**Analytical Method:**	E218.6
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00033**		0.00020	1	12/01/2016 19:12

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**IC2**	**130602**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Hexavalent chromium	**0.00041**		0.00020	1	12/01/2016 19:34

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/30/16	**Analytical Method:**	E300.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 09 ft	**1609E06-001A**	**Soil**	**09/29/2016 13:30**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 13:13
Nitrate as $NO3^-$	ND	45	1	10/01/2016 13:13

Surrogates	REC (%)	Limits	
Formate	98	80-120	10/01/2016 13:13

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 25 ft	**1609E06-002A**	**Soil**	**09/29/2016 14:00**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 13:52
Nitrate as $NO3^-$	ND	45	1	10/01/2016 13:52

Surrogates	REC (%)	Limits	
Formate	95	80-120	10/01/2016 13:52

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50 ft	**1609E06-003A**	**Soil**	**09/29/2016 14:45**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 14:31
Nitrate as $NO3^-$	ND	45	1	10/01/2016 14:31

Surrogates	REC (%)	Limits	
Formate	94	80-120	10/01/2016 14:31

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/30/16	**Analytical Method:**	E300.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65 ft	**1609E06-004A**	**Soil**	**09/29/2016 15:15**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 15:10
Nitrate as NO3$^-$	ND	45	1	10/01/2016 15:10

Surrogates	REC (%)	Limits	
Formate	96	80-120	10/01/2016 15:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80 ft	**1609E06-005A**	**Soil**	**09/29/2016 16:00**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 15:49
Nitrate as NO3$^-$	ND	45	1	10/01/2016 15:49

Surrogates	REC (%)	Limits	
Formate	95	80-120	10/01/2016 15:49

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100 ft	**1609E06-006A**	**Soil**	**09/29/2016 17:00**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/01/2016 17:47
Nitrate as NO3$^-$	ND	45	1	10/01/2016 17:47

Surrogates	REC (%)	Limits	
Formate	94	80-120	10/01/2016 17:47

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.0
Date Prepared:	9/30/16	**Analytical Method:**	E300.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125 ft	**1609E06-007A**	**Soil**	**09/30/2016 09:00**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/02/2016 00:58
Nitrate as NO3^{-}	ND	45	1	10/02/2016 00:58

Surrogates	REC (%)	Limits	
Formate	95	80-120	10/02/2016 00:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 140 ft	**1609E06-008A**	**Soil**	**09/30/2016 09:40**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/02/2016 01:37
Nitrate as NO3^{-}	ND	45	1	10/02/2016 01:37

Surrogates	REC (%)	Limits	
Formate	96	80-120	10/02/2016 01:37

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 160 ft	**1609E06-009A**	**Soil**	**09/30/2016 11:00**	**IC3**	**127446**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	10	1	10/02/2016 02:16
Nitrate as NO3^{-}	ND	45	1	10/02/2016 02:16

Surrogates	REC (%)	Limits	
Formate	96	80-120	10/02/2016 02:16

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 10:48
Chloride	**42**	5.0	50	11/25/2016 18:24
Fluoride	ND	0.10	1	11/23/2016 10:48
Nitrate as N	**2.3**	0.10	1	11/23/2016 10:48
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 10:48
Nitrite as N	ND	0.10	1	11/23/2016 10:48
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 10:48
Sulfate	**1.0**	0.10	1	11/23/2016 10:48

Surrogates	REC (%)	Limits		
	98	90-115		11/23/2016 10:48

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 11:27
Chloride	**41**	5.0	50	11/25/2016 19:03
Fluoride	ND	0.10	1	11/23/2016 11:27
Nitrate as N	**2.3**	0.10	1	11/23/2016 11:27
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 11:27
Nitrite as N	ND	0.10	1	11/23/2016 11:27
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 11:27
Sulfate	**0.93**	0.10	1	11/23/2016 11:27

Surrogates	REC (%)	Limits		
	99	90-115		11/23/2016 11:27

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 12:06
Chloride	**41**	5.0	50	11/25/2016 21:01
Fluoride	ND	0.10	1	11/23/2016 12:06
Nitrate as N	**2.3**	0.10	1	11/23/2016 12:06
Nitrate as $NO3^{-}$	**10**	0.45	1	11/23/2016 12:06
Nitrite as N	ND	0.10	1	11/23/2016 12:06
Nitrite as $NO2^{-}$	ND	0.33	1	11/23/2016 12:06
Sulfate	**0.84**	0.10	1	11/23/2016 12:06

Surrogates	REC (%)	Limits	
	97	90-115	11/23/2016 12:06

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 12:45
Chloride	**41**	5.0	50	11/25/2016 21:40
Fluoride	ND	0.10	1	11/23/2016 12:45
Nitrate as N	**2.2**	0.10	1	11/23/2016 12:45
Nitrate as $NO3^{-}$	**10**	0.45	1	11/23/2016 12:45
Nitrite as N	ND	0.10	1	11/23/2016 12:45
Nitrite as $NO2^{-}$	ND	0.33	1	11/23/2016 12:45
Sulfate	**0.97**	0.10	1	11/23/2016 12:45

Surrogates	REC (%)	Limits	
	98	90-115	11/23/2016 12:45

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 13:24
Chloride	**43**	5.0	50	11/25/2016 22:19
Fluoride	**0.16**	0.10	1	11/23/2016 13:24
Nitrate as N	**2.4**	0.10	1	11/23/2016 13:24
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 13:24
Nitrite as N	ND	0.10	1	11/23/2016 13:24
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 13:24
Sulfate	**2.5**	0.10	1	11/23/2016 13:24

Surrogates	REC (%)	Limits	
	106	90-115	11/23/2016 13:24

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**IC3**	**130575**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 14:04
Chloride	**43**	5.0	50	11/25/2016 22:59
Fluoride	**0.16**	0.10	1	11/23/2016 14:04
Nitrate as N	**2.4**	0.10	1	11/23/2016 14:04
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 14:04
Nitrite as N	ND	0.10	1	11/23/2016 14:04
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 14:04
Sulfate	**2.4**	0.10	1	11/23/2016 14:04

Surrogates	REC (%)	Qualifiers	Limits	
	42	S	90-115	11/23/2016 14:04

Analyst(s): AO   Analytical Comments: c2

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 14:43
Chloride	**42**	5.0	50	11/25/2016 23:38
Fluoride	**0.17**	0.10	1	11/23/2016 14:43
Nitrate as N	**2.3**	0.10	1	11/23/2016 14:43
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 14:43
Nitrite as N	ND	0.10	1	11/23/2016 14:43
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 14:43
Sulfate	**1.0**	0.10	1	11/23/2016 14:43

Surrogates	REC (%)	Qualifiers	Limits	
	56	S	90-115	11/23/2016 14:43

Analyst(s): AO   Analytical Comments: c2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 16:41
Chloride	**41**	5.0	50	11/26/2016 00:17
Fluoride	**0.19**	0.10	1	11/23/2016 16:41
Nitrate as N	**2.3**	0.10	1	11/23/2016 16:41
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 16:41
Nitrite as N	ND	0.10	1	11/23/2016 16:41
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 16:41
Sulfate	**1.1**	0.10	1	11/23/2016 16:41

Surrogates	REC (%)	Qualifiers	Limits	
	79	S	90-115	11/23/2016 16:41

Analyst(s): AO   Analytical Comments: c2

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 17:21
Chloride	**42**	5.0	50	11/26/2016 00:56
Fluoride	**0.15**	0.10	1	11/23/2016 17:21
Nitrate as N	**2.3**	0.10	1	11/23/2016 17:21
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 17:21
Nitrite as N	ND	0.10	1	11/23/2016 17:21
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 17:21
Sulfate	**1.9**	0.10	1	11/23/2016 17:21

Surrogates	REC (%)	Limits	
	104	90-115	11/23/2016 17:21

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 18:00
Chloride	**41**	5.0	50	11/26/2016 01:35
Fluoride	**0.16**	0.10	1	11/23/2016 18:00
Nitrate as N	**2.3**	0.10	1	11/23/2016 18:00
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 18:00
Nitrite as N	ND	0.10	1	11/23/2016 18:00
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 18:00
Sulfate	**1.9**	0.10	1	11/23/2016 18:00

Surrogates	REC (%)	Limits	
	101	90-115	11/23/2016 18:00

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/23/2016 18:39
Chloride	**42**	5.0	50	11/26/2016 02:14
Fluoride	**0.14**	0.10	1	11/23/2016 18:39
Nitrate as N	**2.3**	0.10	1	11/23/2016 18:39
Nitrate as $NO3^-$	**10**	0.45	1	11/23/2016 18:39
Nitrite as N	ND	0.10	1	11/23/2016 18:39
Nitrite as $NO2^-$	ND	0.33	1	11/23/2016 18:39
Sulfate	**1.9**	0.10	1	11/23/2016 18:39

Surrogates	REC (%)	Limits	
	99	90-115	11/23/2016 18:39

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 01:50
Chloride	**41**	5.0	50	11/26/2016 04:51
Fluoride	**0.13**	0.10	1	11/24/2016 01:50
Nitrate as N	**2.3**	0.10	1	11/24/2016 01:50
Nitrate as $NO3^-$	**10**	0.45	1	11/24/2016 01:50
Nitrite as N	ND	0.10	1	11/24/2016 01:50
Nitrite as $NO2^-$	ND	0.33	1	11/24/2016 01:50
Sulfate	**1.6**	0.10	1	11/24/2016 01:50

Surrogates	REC (%)	Limits	
	93	90-115	11/24/2016 01:50

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 02:30
Chloride	**42**	5.0	50	11/26/2016 05:30
Fluoride	**0.13**	0.10	1	11/24/2016 02:30
Nitrate as N	**2.3**	0.10	1	11/24/2016 02:30
Nitrate as $NO3^{-}$	**10**	0.45	1	11/24/2016 02:30
Nitrite as N	ND	0.10	1	11/24/2016 02:30
Nitrite as $NO2^{-}$	ND	0.33	1	11/24/2016 02:30
Sulfate	**1.3**	0.10	1	11/24/2016 02:30

Surrogates	REC (%)	Limits	
	107	90-115	11/24/2016 02:30

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 03:09
Chloride	**41**	5.0	50	11/26/2016 06:09
Fluoride	**0.16**	0.10	1	11/24/2016 03:09
Nitrate as N	**2.3**	0.10	1	11/24/2016 03:09
Nitrate as $NO3^{-}$	**10**	0.45	1	11/24/2016 03:09
Nitrite as N	ND	0.10	1	11/24/2016 03:09
Nitrite as $NO2^{-}$	ND	0.33	1	11/24/2016 03:09
Sulfate	**1.7**	0.10	1	11/24/2016 03:09

Surrogates	REC (%)	Limits	
	106	90-115	11/24/2016 03:09

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 03:48
Chloride	**42**	5.0	50	11/26/2016 06:49
Fluoride	**0.24**	0.10	1	11/24/2016 03:48
Nitrate as N	**2.3**	0.10	1	11/24/2016 03:48
Nitrate as $NO3^-$	**10**	0.45	1	11/24/2016 03:48
Nitrite as N	ND	0.10	1	11/24/2016 03:48
Nitrite as $NO2^-$	ND	0.33	1	11/24/2016 03:48
Sulfate	**1.3**	0.10	1	11/24/2016 03:48

Surrogates	REC (%)	Limits	
	108	90-115	11/24/2016 03:48

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 04:27
Chloride	**42**	5.0	50	11/26/2016 07:28
Fluoride	**0.26**	0.10	1	11/24/2016 04:27
Nitrate as N	**2.3**	0.10	1	11/24/2016 04:27
Nitrate as $NO3^-$	**10**	0.45	1	11/24/2016 04:27
Nitrite as N	ND	0.10	1	11/24/2016 04:27
Nitrite as $NO2^-$	ND	0.33	1	11/24/2016 04:27
Sulfate	**1.5**	0.10	1	11/24/2016 04:27

Surrogates	REC (%)	Limits	
	108	90-115	11/24/2016 04:27

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E300.1
Date Prepared:	11/21/16	**Analytical Method:**	E300.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 06:27
Chloride	**41**	5.0	50	11/26/2016 08:07
Fluoride	**0.24**	0.10	1	11/24/2016 06:27
Nitrate as N	**2.3**	0.10	1	11/24/2016 06:27
Nitrate as $NO3^-$	**10**	0.45	1	11/24/2016 06:27
Nitrite as N	ND	0.10	1	11/24/2016 06:27
Nitrite as $NO2^-$	ND	0.33	1	11/24/2016 06:27
Sulfate	**1.8**	0.10	1	11/24/2016 06:27

Surrogates	REC (%)	Limits	
	106	90-115	11/24/2016 06:27

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**IC3**	**130576**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	11/24/2016 07:07
Chloride	**42**	5.0	50	11/26/2016 08:46
Fluoride	**0.22**	0.10	1	11/24/2016 07:07
Nitrate as N	**2.3**	0.10	1	11/24/2016 07:07
Nitrate as $NO3^-$	**10**	0.45	1	11/24/2016 07:07
Nitrite as N	ND	0.10	1	11/24/2016 07:07
Nitrite as $NO2^-$	ND	0.33	1	11/24/2016 07:07
Sulfate	**1.8**	0.10	1	11/24/2016 07:07

Surrogates	REC (%)	Limits	
	105	90-115	11/24/2016 07:07

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/26/16	**Analytical Method:**	E314.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 01:16

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 10:57

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 11:42

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 12:26

Analyst(s): AO

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 11/26/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: E314.0
Analytical Method: E314.0
Unit: mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**IC1**	**130544**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 13:11

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 13:56

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 03:30

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 04:15

Analyst(s): AO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/26/16	**Analytical Method:**	E314.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 04:59

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 05:44

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 06:29

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 07:14

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/26/16	**Analytical Method:**	E314.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 07:58

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 08:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 14:41

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 15:25

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0
Date Prepared:	11/26/16	**Analytical Method:**	E314.0
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Perchlorate [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 16:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**IC1**	**130545**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.0040	1	11/26/2016 16:55

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	10/5/16	**Analytical Method:**	E314.0m
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 09 ft	**1609E06-001A**	**Soil**	**09/29/2016 13:30**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 03:18

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 25 ft	**1609E06-002A**	**Soil**	**09/29/2016 14:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 04:00

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50 ft	**1609E06-003A**	**Soil**	**09/29/2016 14:45**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 04:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65 ft	**1609E06-004A**	**Soil**	**09/29/2016 15:15**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 05:26

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	10/5/16	**Analytical Method:**	E314.0m
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80 ft	**1609E06-005A**	**Soil**	**09/29/2016 16:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 06:08

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100 ft	**1609E06-006A**	**Soil**	**09/29/2016 17:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 06:51

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125 ft	**1609E06-007A**	**Soil**	**09/30/2016 09:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.50	1	10/05/2016 08:59

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 140 ft	**1609E06-008A**	**Soil**	**09/30/2016 09:40**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 09:42

Analyst(s): AO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E314.0 modified
Date Prepared:	10/5/16	**Analytical Method:**	E314.0m
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Perchlorate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 160 ft	**1609E06-009A**	**Soil**	**09/30/2016 11:00**	**IC1**	**127623**

Analytes	Result	RL	DF	Date Analyzed
Perchlorate	ND	0.40	1	10/05/2016 10:25

Analyst(s): AO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 01:05
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 01:05
Benzene	ND	0.0050	1	10/07/2016 01:05
Bromobenzene	ND	0.0050	1	10/07/2016 01:05
Bromochloromethane	ND	0.0050	1	10/07/2016 01:05
Bromodichloromethane	ND	0.0050	1	10/07/2016 01:05
Bromoform	ND	0.0050	1	10/07/2016 01:05
Bromomethane	ND	0.0050	1	10/07/2016 01:05
2-Butanone (MEK)	ND	0.020	1	10/07/2016 01:05
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 01:05
n-Butyl benzene	ND	0.0050	1	10/07/2016 01:05
sec-Butyl benzene	ND	0.0050	1	10/07/2016 01:05
tert-Butyl benzene	ND	0.0050	1	10/07/2016 01:05
Carbon Disulfide	ND	0.0050	1	10/07/2016 01:05
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 01:05
Chlorobenzene	ND	0.0050	1	10/07/2016 01:05
Chloroethane	ND	0.0050	1	10/07/2016 01:05
Chloroform	ND	0.0050	1	10/07/2016 01:05
Chloromethane	ND	0.0050	1	10/07/2016 01:05
2-Chlorotoluene	ND	0.0050	1	10/07/2016 01:05
4-Chlorotoluene	ND	0.0050	1	10/07/2016 01:05
Dibromochloromethane	ND	0.0050	1	10/07/2016 01:05
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 01:05
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 01:05
Dibromomethane	ND	0.0050	1	10/07/2016 01:05
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:05
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:05
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:05
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 01:05
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 01:05
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 01:05
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 01:05
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 01:05
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 01:05
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 01:05
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 01:05
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 01:05

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 01:05
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 01:05
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 01:05
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 01:05
Ethylbenzene	ND	0.0050	1	10/07/2016 01:05
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 01:05
Freon 113	ND	0.0050	1	10/07/2016 01:05
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 01:05
Hexachloroethane	ND	0.0050	1	10/07/2016 01:05
2-Hexanone	ND	0.0050	1	10/07/2016 01:05
Isopropylbenzene	ND	0.0050	1	10/07/2016 01:05
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 01:05
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 01:05
Methylene chloride	ND	0.0050	1	10/07/2016 01:05
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 01:05
Naphthalene	ND	0.0050	1	10/07/2016 01:05
n-Propyl benzene	ND	0.0050	1	10/07/2016 01:05
Styrene	ND	0.0050	1	10/07/2016 01:05
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 01:05
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 01:05
Tetrachloroethene	ND	0.0050	1	10/07/2016 01:05
Toluene	ND	0.0050	1	10/07/2016 01:05
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 01:05
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 01:05
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 01:05
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 01:05
Trichloroethene	ND	0.0050	1	10/07/2016 01:05
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 01:05
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 01:05
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 01:05
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 01:05
Vinyl Chloride	ND	0.0050	1	10/07/2016 01:05
Xylenes, Total	ND	0.0050	1	10/07/2016 01:05

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 01:05
Toluene-d8	103	70-130		10/07/2016 01:05
4-BFB	82	70-130		10/07/2016 01:05
Benzene-d6	84	60-140		10/07/2016 01:05
Ethylbenzene-d10	101	60-140		10/07/2016 01:05
1,2-DCB-d4	79	60-140		10/07/2016 01:05

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 01:45
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 01:45
Benzene	ND	0.0050	1	10/07/2016 01:45
Bromobenzene	ND	0.0050	1	10/07/2016 01:45
Bromochloromethane	ND	0.0050	1	10/07/2016 01:45
Bromodichloromethane	ND	0.0050	1	10/07/2016 01:45
Bromoform	ND	0.0050	1	10/07/2016 01:45
Bromomethane	ND	0.0050	1	10/07/2016 01:45
2-Butanone (MEK)	ND	0.020	1	10/07/2016 01:45
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 01:45
n-Butyl benzene	ND	0.0050	1	10/07/2016 01:45
sec-Butyl benzene	ND	0.0050	1	10/07/2016 01:45
tert-Butyl benzene	ND	0.0050	1	10/07/2016 01:45
Carbon Disulfide	ND	0.0050	1	10/07/2016 01:45
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 01:45
Chlorobenzene	ND	0.0050	1	10/07/2016 01:45
Chloroethane	ND	0.0050	1	10/07/2016 01:45
Chloroform	ND	0.0050	1	10/07/2016 01:45
Chloromethane	ND	0.0050	1	10/07/2016 01:45
2-Chlorotoluene	ND	0.0050	1	10/07/2016 01:45
4-Chlorotoluene	ND	0.0050	1	10/07/2016 01:45
Dibromochloromethane	ND	0.0050	1	10/07/2016 01:45
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 01:45
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 01:45
Dibromomethane	ND	0.0050	1	10/07/2016 01:45
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:45
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:45
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 01:45
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 01:45
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 01:45
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 01:45
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 01:45
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 01:45
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 01:45
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 01:45
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 01:45
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 01:45

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 01:45
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 01:45
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 01:45
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 01:45
Ethylbenzene	ND	0.0050	1	10/07/2016 01:45
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 01:45
Freon 113	ND	0.0050	1	10/07/2016 01:45
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 01:45
Hexachloroethane	ND	0.0050	1	10/07/2016 01:45
2-Hexanone	ND	0.0050	1	10/07/2016 01:45
Isopropylbenzene	ND	0.0050	1	10/07/2016 01:45
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 01:45
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 01:45
Methylene chloride	ND	0.0050	1	10/07/2016 01:45
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 01:45
Naphthalene	ND	0.0050	1	10/07/2016 01:45
n-Propyl benzene	ND	0.0050	1	10/07/2016 01:45
Styrene	ND	0.0050	1	10/07/2016 01:45
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 01:45
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 01:45
Tetrachloroethene	ND	0.0050	1	10/07/2016 01:45
Toluene	ND	0.0050	1	10/07/2016 01:45
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 01:45
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 01:45
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 01:45
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 01:45
Trichloroethene	ND	0.0050	1	10/07/2016 01:45
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 01:45
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 01:45
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 01:45
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 01:45
Vinyl Chloride	ND	0.0050	1	10/07/2016 01:45
Xylenes, Total	ND	0.0050	1	10/07/2016 01:45

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 01:45
Toluene-d8	102	70-130		10/07/2016 01:45
4-BFB	83	70-130		10/07/2016 01:45
Benzene-d6	85	60-140		10/07/2016 01:45
Ethylbenzene-d10	106	60-140		10/07/2016 01:45
1,2-DCB-d4	80	60-140		10/07/2016 01:45

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 02:25
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 02:25
Benzene	ND	0.0050	1	10/07/2016 02:25
Bromobenzene	ND	0.0050	1	10/07/2016 02:25
Bromochloromethane	ND	0.0050	1	10/07/2016 02:25
Bromodichloromethane	ND	0.0050	1	10/07/2016 02:25
Bromoform	ND	0.0050	1	10/07/2016 02:25
Bromomethane	ND	0.0050	1	10/07/2016 02:25
2-Butanone (MEK)	ND	0.020	1	10/07/2016 02:25
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 02:25
n-Butyl benzene	ND	0.0050	1	10/07/2016 02:25
sec-Butyl benzene	ND	0.0050	1	10/07/2016 02:25
tert-Butyl benzene	ND	0.0050	1	10/07/2016 02:25
Carbon Disulfide	ND	0.0050	1	10/07/2016 02:25
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 02:25
Chlorobenzene	ND	0.0050	1	10/07/2016 02:25
Chloroethane	ND	0.0050	1	10/07/2016 02:25
Chloroform	ND	0.0050	1	10/07/2016 02:25
Chloromethane	ND	0.0050	1	10/07/2016 02:25
2-Chlorotoluene	ND	0.0050	1	10/07/2016 02:25
4-Chlorotoluene	ND	0.0050	1	10/07/2016 02:25
Dibromochloromethane	ND	0.0050	1	10/07/2016 02:25
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 02:25
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 02:25
Dibromomethane	ND	0.0050	1	10/07/2016 02:25
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 02:25
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 02:25
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 02:25
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 02:25
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 02:25
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 02:25
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 02:25
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 02:25
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 02:25
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 02:25
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 02:25
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 02:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 02:25
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 02:25
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 02:25
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 02:25
Ethylbenzene	ND	0.0050	1	10/07/2016 02:25
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 02:25
Freon 113	ND	0.0050	1	10/07/2016 02:25
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 02:25
Hexachloroethane	ND	0.0050	1	10/07/2016 02:25
2-Hexanone	ND	0.0050	1	10/07/2016 02:25
Isopropylbenzene	ND	0.0050	1	10/07/2016 02:25
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 02:25
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 02:25
Methylene chloride	ND	0.0050	1	10/07/2016 02:25
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 02:25
Naphthalene	ND	0.0050	1	10/07/2016 02:25
n-Propyl benzene	ND	0.0050	1	10/07/2016 02:25
Styrene	ND	0.0050	1	10/07/2016 02:25
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 02:25
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 02:25
Tetrachloroethene	ND	0.0050	1	10/07/2016 02:25
Toluene	ND	0.0050	1	10/07/2016 02:25
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 02:25
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 02:25
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 02:25
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 02:25
Trichloroethene	ND	0.0050	1	10/07/2016 02:25
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 02:25
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 02:25
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 02:25
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 02:25
Vinyl Chloride	ND	0.0050	1	10/07/2016 02:25
Xylenes, Total	ND	0.0050	1	10/07/2016 02:25

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	101	70-130		10/07/2016 02:25
Toluene-d8	101	70-130		10/07/2016 02:25
4-BFB	85	70-130		10/07/2016 02:25
Benzene-d6	98	60-140		10/07/2016 02:25
Ethylbenzene-d10	117	60-140		10/07/2016 02:25
1,2-DCB-d4	88	60-140		10/07/2016 02:25

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 03:06
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 03:06
Benzene	ND	0.0050	1	10/07/2016 03:06
Bromobenzene	ND	0.0050	1	10/07/2016 03:06
Bromochloromethane	ND	0.0050	1	10/07/2016 03:06
Bromodichloromethane	ND	0.0050	1	10/07/2016 03:06
Bromoform	ND	0.0050	1	10/07/2016 03:06
Bromomethane	ND	0.0050	1	10/07/2016 03:06
2-Butanone (MEK)	ND	0.020	1	10/07/2016 03:06
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 03:06
n-Butyl benzene	ND	0.0050	1	10/07/2016 03:06
sec-Butyl benzene	ND	0.0050	1	10/07/2016 03:06
tert-Butyl benzene	ND	0.0050	1	10/07/2016 03:06
Carbon Disulfide	ND	0.0050	1	10/07/2016 03:06
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 03:06
Chlorobenzene	ND	0.0050	1	10/07/2016 03:06
Chloroethane	ND	0.0050	1	10/07/2016 03:06
Chloroform	ND	0.0050	1	10/07/2016 03:06
Chloromethane	ND	0.0050	1	10/07/2016 03:06
2-Chlorotoluene	ND	0.0050	1	10/07/2016 03:06
4-Chlorotoluene	ND	0.0050	1	10/07/2016 03:06
Dibromochloromethane	ND	0.0050	1	10/07/2016 03:06
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 03:06
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 03:06
Dibromomethane	ND	0.0050	1	10/07/2016 03:06
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:06
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:06
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:06
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 03:06
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 03:06
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 03:06
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 03:06
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 03:06
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 03:06
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 03:06
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 03:06
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 03:06

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 03:06
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 03:06
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 03:06
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 03:06
Ethylbenzene	ND	0.0050	1	10/07/2016 03:06
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 03:06
Freon 113	ND	0.0050	1	10/07/2016 03:06
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 03:06
Hexachloroethane	ND	0.0050	1	10/07/2016 03:06
2-Hexanone	ND	0.0050	1	10/07/2016 03:06
Isopropylbenzene	ND	0.0050	1	10/07/2016 03:06
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 03:06
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 03:06
Methylene chloride	ND	0.0050	1	10/07/2016 03:06
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 03:06
Naphthalene	ND	0.0050	1	10/07/2016 03:06
n-Propyl benzene	ND	0.0050	1	10/07/2016 03:06
Styrene	ND	0.0050	1	10/07/2016 03:06
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 03:06
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 03:06
Tetrachloroethene	ND	0.0050	1	10/07/2016 03:06
Toluene	ND	0.0050	1	10/07/2016 03:06
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 03:06
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 03:06
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 03:06
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 03:06
Trichloroethene	ND	0.0050	1	10/07/2016 03:06
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 03:06
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 03:06
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 03:06
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 03:06
Vinyl Chloride	ND	0.0050	1	10/07/2016 03:06
Xylenes, Total	ND	0.0050	1	10/07/2016 03:06

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 9/30/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 03:06
Toluene-d8	102	70-130		10/07/2016 03:06
4-BFB	87	70-130		10/07/2016 03:06
Benzene-d6	88	60-140		10/07/2016 03:06
Ethylbenzene-d10	109	60-140		10/07/2016 03:06
1,2-DCB-d4	84	60-140		10/07/2016 03:06

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 03:46
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 03:46
Benzene	ND	0.0050	1	10/07/2016 03:46
Bromobenzene	ND	0.0050	1	10/07/2016 03:46
Bromochloromethane	ND	0.0050	1	10/07/2016 03:46
Bromodichloromethane	ND	0.0050	1	10/07/2016 03:46
Bromoform	ND	0.0050	1	10/07/2016 03:46
Bromomethane	ND	0.0050	1	10/07/2016 03:46
2-Butanone (MEK)	ND	0.020	1	10/07/2016 03:46
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 03:46
n-Butyl benzene	ND	0.0050	1	10/07/2016 03:46
sec-Butyl benzene	ND	0.0050	1	10/07/2016 03:46
tert-Butyl benzene	ND	0.0050	1	10/07/2016 03:46
Carbon Disulfide	ND	0.0050	1	10/07/2016 03:46
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 03:46
Chlorobenzene	ND	0.0050	1	10/07/2016 03:46
Chloroethane	ND	0.0050	1	10/07/2016 03:46
Chloroform	ND	0.0050	1	10/07/2016 03:46
Chloromethane	ND	0.0050	1	10/07/2016 03:46
2-Chlorotoluene	ND	0.0050	1	10/07/2016 03:46
4-Chlorotoluene	ND	0.0050	1	10/07/2016 03:46
Dibromochloromethane	ND	0.0050	1	10/07/2016 03:46
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 03:46
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 03:46
Dibromomethane	ND	0.0050	1	10/07/2016 03:46
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:46
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:46
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 03:46
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 03:46
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 03:46
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 03:46
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 03:46
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 03:46
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 03:46
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 03:46
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 03:46
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 03:46

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 03:46
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 03:46
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 03:46
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 03:46
Ethylbenzene	ND	0.0050	1	10/07/2016 03:46
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 03:46
Freon 113	ND	0.0050	1	10/07/2016 03:46
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 03:46
Hexachloroethane	ND	0.0050	1	10/07/2016 03:46
2-Hexanone	ND	0.0050	1	10/07/2016 03:46
Isopropylbenzene	ND	0.0050	1	10/07/2016 03:46
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 03:46
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 03:46
Methylene chloride	ND	0.0050	1	10/07/2016 03:46
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 03:46
Naphthalene	ND	0.0050	1	10/07/2016 03:46
n-Propyl benzene	ND	0.0050	1	10/07/2016 03:46
Styrene	ND	0.0050	1	10/07/2016 03:46
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 03:46
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 03:46
Tetrachloroethene	ND	0.0050	1	10/07/2016 03:46
Toluene	ND	0.0050	1	10/07/2016 03:46
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 03:46
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 03:46
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 03:46
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 03:46
Trichloroethene	ND	0.0050	1	10/07/2016 03:46
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 03:46
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 03:46
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 03:46
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 03:46
Vinyl Chloride	ND	0.0050	1	10/07/2016 03:46
Xylenes, Total	ND	0.0050	1	10/07/2016 03:46

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 03:46
Toluene-d8	102	70-130		10/07/2016 03:46
4-BFB	80	70-130		10/07/2016 03:46
Benzene-d6	78	60-140		10/07/2016 03:46
Ethylbenzene-d10	92	60-140		10/07/2016 03:46
1,2-DCB-d4	76	60-140		10/07/2016 03:46

Analyst(s): KF

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 9/30/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	**1609E06-015A**	**Soil**	**09/29/2016 17:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 04:26
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 04:26
Benzene	ND	0.0050	1	10/07/2016 04:26
Bromobenzene	ND	0.0050	1	10/07/2016 04:26
Bromochloromethane	ND	0.0050	1	10/07/2016 04:26
Bromodichloromethane	ND	0.0050	1	10/07/2016 04:26
Bromoform	ND	0.0050	1	10/07/2016 04:26
Bromomethane	ND	0.0050	1	10/07/2016 04:26
2-Butanone (MEK)	ND	0.020	1	10/07/2016 04:26
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 04:26
n-Butyl benzene	ND	0.0050	1	10/07/2016 04:26
sec-Butyl benzene	ND	0.0050	1	10/07/2016 04:26
tert-Butyl benzene	ND	0.0050	1	10/07/2016 04:26
Carbon Disulfide	ND	0.0050	1	10/07/2016 04:26
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 04:26
Chlorobenzene	ND	0.0050	1	10/07/2016 04:26
Chloroethane	ND	0.0050	1	10/07/2016 04:26
Chloroform	ND	0.0050	1	10/07/2016 04:26
Chloromethane	ND	0.0050	1	10/07/2016 04:26
2-Chlorotoluene	ND	0.0050	1	10/07/2016 04:26
4-Chlorotoluene	ND	0.0050	1	10/07/2016 04:26
Dibromochloromethane	ND	0.0050	1	10/07/2016 04:26
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 04:26
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 04:26
Dibromomethane	ND	0.0050	1	10/07/2016 04:26
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 04:26
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 04:26
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 04:26
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 04:26
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 04:26
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 04:26
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 04:26
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 04:26
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 04:26
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 04:26
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 04:26
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 04:26

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 9/30/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	1609E06-015A	Soil	09/29/2016 17:00	GC10	127419

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 04:26
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 04:26
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 04:26
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 04:26
Ethylbenzene	ND	0.0050	1	10/07/2016 04:26
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 04:26
Freon 113	ND	0.0050	1	10/07/2016 04:26
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 04:26
Hexachloroethane	ND	0.0050	1	10/07/2016 04:26
2-Hexanone	ND	0.0050	1	10/07/2016 04:26
Isopropylbenzene	ND	0.0050	1	10/07/2016 04:26
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 04:26
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 04:26
Methylene chloride	ND	0.0050	1	10/07/2016 04:26
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 04:26
Naphthalene	ND	0.0050	1	10/07/2016 04:26
n-Propyl benzene	ND	0.0050	1	10/07/2016 04:26
Styrene	ND	0.0050	1	10/07/2016 04:26
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 04:26
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 04:26
Tetrachloroethene	ND	0.0050	1	10/07/2016 04:26
Toluene	ND	0.0050	1	10/07/2016 04:26
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 04:26
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 04:26
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 04:26
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 04:26
Trichloroethene	ND	0.0050	1	10/07/2016 04:26
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 04:26
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 04:26
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 04:26
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 04:26
Vinyl Chloride	ND	0.0050	1	10/07/2016 04:26
Xylenes, Total	ND	0.0050	1	10/07/2016 04:26

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	**1609E06-015A**	**Soil**	**09/29/2016 17:00**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 04:26
Toluene-d8	101	70-130		10/07/2016 04:26
4-BFB	82	70-130		10/07/2016 04:26
Benzene-d6	86	60-140		10/07/2016 04:26
Ethylbenzene-d10	105	60-140		10/07/2016 04:26
1,2-DCB-d4	81	60-140		10/07/2016 04:26

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 05:06
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 05:06
Benzene	ND	0.0050	1	10/07/2016 05:06
Bromobenzene	ND	0.0050	1	10/07/2016 05:06
Bromochloromethane	ND	0.0050	1	10/07/2016 05:06
Bromodichloromethane	ND	0.0050	1	10/07/2016 05:06
Bromoform	ND	0.0050	1	10/07/2016 05:06
Bromomethane	ND	0.0050	1	10/07/2016 05:06
2-Butanone (MEK)	ND	0.020	1	10/07/2016 05:06
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 05:06
n-Butyl benzene	ND	0.0050	1	10/07/2016 05:06
sec-Butyl benzene	ND	0.0050	1	10/07/2016 05:06
tert-Butyl benzene	ND	0.0050	1	10/07/2016 05:06
Carbon Disulfide	ND	0.0050	1	10/07/2016 05:06
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 05:06
Chlorobenzene	ND	0.0050	1	10/07/2016 05:06
Chloroethane	ND	0.0050	1	10/07/2016 05:06
Chloroform	ND	0.0050	1	10/07/2016 05:06
Chloromethane	ND	0.0050	1	10/07/2016 05:06
2-Chlorotoluene	ND	0.0050	1	10/07/2016 05:06
4-Chlorotoluene	ND	0.0050	1	10/07/2016 05:06
Dibromochloromethane	ND	0.0050	1	10/07/2016 05:06
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 05:06
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 05:06
Dibromomethane	ND	0.0050	1	10/07/2016 05:06
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:06
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:06
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:06
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 05:06
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 05:06
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 05:06
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 05:06
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 05:06
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 05:06
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 05:06
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 05:06
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 05:06

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 05:06
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 05:06
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 05:06
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 05:06
Ethylbenzene	ND	0.0050	1	10/07/2016 05:06
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 05:06
Freon 113	ND	0.0050	1	10/07/2016 05:06
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 05:06
Hexachloroethane	ND	0.0050	1	10/07/2016 05:06
2-Hexanone	ND	0.0050	1	10/07/2016 05:06
Isopropylbenzene	ND	0.0050	1	10/07/2016 05:06
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 05:06
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 05:06
Methylene chloride	ND	0.0050	1	10/07/2016 05:06
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 05:06
Naphthalene	ND	0.0050	1	10/07/2016 05:06
n-Propyl benzene	ND	0.0050	1	10/07/2016 05:06
Styrene	ND	0.0050	1	10/07/2016 05:06
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 05:06
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 05:06
Tetrachloroethene	ND	0.0050	1	10/07/2016 05:06
Toluene	ND	0.0050	1	10/07/2016 05:06
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 05:06
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 05:06
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 05:06
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 05:06
Trichloroethene	ND	0.0050	1	10/07/2016 05:06
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 05:06
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 05:06
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 05:06
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 05:06
Vinyl Chloride	ND	0.0050	1	10/07/2016 05:06
Xylenes, Total	ND	0.0050	1	10/07/2016 05:06

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/07/2016 05:06
Toluene-d8	101	70-130		10/07/2016 05:06
4-BFB	82	70-130		10/07/2016 05:06
Benzene-d6	95	60-140		10/07/2016 05:06
Ethylbenzene-d10	118	60-140		10/07/2016 05:06
1,2-DCB-d4	84	60-140		10/07/2016 05:06

Analyst(s): KF

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/07/2016 05:47
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/07/2016 05:47
Benzene	ND	0.0050	1	10/07/2016 05:47
Bromobenzene	ND	0.0050	1	10/07/2016 05:47
Bromochloromethane	ND	0.0050	1	10/07/2016 05:47
Bromodichloromethane	ND	0.0050	1	10/07/2016 05:47
Bromoform	ND	0.0050	1	10/07/2016 05:47
Bromomethane	ND	0.0050	1	10/07/2016 05:47
2-Butanone (MEK)	ND	0.020	1	10/07/2016 05:47
t-Butyl alcohol (TBA)	ND	0.050	1	10/07/2016 05:47
n-Butyl benzene	ND	0.0050	1	10/07/2016 05:47
sec-Butyl benzene	ND	0.0050	1	10/07/2016 05:47
tert-Butyl benzene	ND	0.0050	1	10/07/2016 05:47
Carbon Disulfide	ND	0.0050	1	10/07/2016 05:47
Carbon Tetrachloride	ND	0.0050	1	10/07/2016 05:47
Chlorobenzene	ND	0.0050	1	10/07/2016 05:47
Chloroethane	ND	0.0050	1	10/07/2016 05:47
Chloroform	ND	0.0050	1	10/07/2016 05:47
Chloromethane	ND	0.0050	1	10/07/2016 05:47
2-Chlorotoluene	ND	0.0050	1	10/07/2016 05:47
4-Chlorotoluene	ND	0.0050	1	10/07/2016 05:47
Dibromochloromethane	ND	0.0050	1	10/07/2016 05:47
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/07/2016 05:47
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/07/2016 05:47
Dibromomethane	ND	0.0050	1	10/07/2016 05:47
1,2-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:47
1,3-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:47
1,4-Dichlorobenzene	ND	0.0050	1	10/07/2016 05:47
Dichlorodifluoromethane	ND	0.0050	1	10/07/2016 05:47
1,1-Dichloroethane	ND	0.0050	1	10/07/2016 05:47
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/07/2016 05:47
1,1-Dichloroethene	ND	0.0050	1	10/07/2016 05:47
cis-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 05:47
trans-1,2-Dichloroethene	ND	0.0050	1	10/07/2016 05:47
1,2-Dichloropropane	ND	0.0050	1	10/07/2016 05:47
1,3-Dichloropropane	ND	0.0050	1	10/07/2016 05:47
2,2-Dichloropropane	ND	0.0050	1	10/07/2016 05:47

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/07/2016 05:47
cis-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 05:47
trans-1,3-Dichloropropene	ND	0.0050	1	10/07/2016 05:47
Diisopropyl ether (DIPE)	ND	0.0050	1	10/07/2016 05:47
Ethylbenzene	ND	0.0050	1	10/07/2016 05:47
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/07/2016 05:47
Freon 113	ND	0.0050	1	10/07/2016 05:47
Hexachlorobutadiene	ND	0.0050	1	10/07/2016 05:47
Hexachloroethane	ND	0.0050	1	10/07/2016 05:47
2-Hexanone	ND	0.0050	1	10/07/2016 05:47
Isopropylbenzene	ND	0.0050	1	10/07/2016 05:47
4-Isopropyl toluene	ND	0.0050	1	10/07/2016 05:47
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/07/2016 05:47
Methylene chloride	ND	0.0050	1	10/07/2016 05:47
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/07/2016 05:47
Naphthalene	ND	0.0050	1	10/07/2016 05:47
n-Propyl benzene	ND	0.0050	1	10/07/2016 05:47
Styrene	ND	0.0050	1	10/07/2016 05:47
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 05:47
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/07/2016 05:47
Tetrachloroethene	ND	0.0050	1	10/07/2016 05:47
Toluene	ND	0.0050	1	10/07/2016 05:47
1,2,3-Trichlorobenzene	ND	0.0050	1	10/07/2016 05:47
1,2,4-Trichlorobenzene	ND	0.0050	1	10/07/2016 05:47
1,1,1-Trichloroethane	ND	0.0050	1	10/07/2016 05:47
1,1,2-Trichloroethane	ND	0.0050	1	10/07/2016 05:47
Trichloroethene	ND	0.0050	1	10/07/2016 05:47
Trichlorofluoromethane	ND	0.0050	1	10/07/2016 05:47
1,2,3-Trichloropropane	ND	0.0050	1	10/07/2016 05:47
1,2,4-Trimethylbenzene	ND	0.0050	1	10/07/2016 05:47
1,3,5-Trimethylbenzene	ND	0.0050	1	10/07/2016 05:47
Vinyl Chloride	ND	0.0050	1	10/07/2016 05:47
Xylenes, Total	ND	0.0050	1	10/07/2016 05:47

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 9/30/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC10**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	100	70-130		10/07/2016 05:47
Toluene-d8	103	70-130		10/07/2016 05:47
4-BFB	81	70-130		10/07/2016 05:47
Benzene-d6	89	60-140		10/07/2016 05:47
Ethylbenzene-d10	110	60-140		10/07/2016 05:47
1,2-DCB-d4	83	60-140		10/07/2016 05:47

Analyst(s): KF

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC18**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	10/06/2016 21:57
tert-Amyl methyl ether (TAME)	ND	0.0050	1	10/06/2016 21:57
Benzene	ND	0.0050	1	10/06/2016 21:57
Bromobenzene	ND	0.0050	1	10/06/2016 21:57
Bromochloromethane	ND	0.0050	1	10/06/2016 21:57
Bromodichloromethane	ND	0.0050	1	10/06/2016 21:57
Bromoform	ND	0.0050	1	10/06/2016 21:57
Bromomethane	ND	0.0050	1	10/06/2016 21:57
2-Butanone (MEK)	ND	0.020	1	10/06/2016 21:57
t-Butyl alcohol (TBA)	ND	0.050	1	10/06/2016 21:57
n-Butyl benzene	ND	0.0050	1	10/06/2016 21:57
sec-Butyl benzene	ND	0.0050	1	10/06/2016 21:57
tert-Butyl benzene	ND	0.0050	1	10/06/2016 21:57
Carbon Disulfide	ND	0.0050	1	10/06/2016 21:57
Carbon Tetrachloride	ND	0.0050	1	10/06/2016 21:57
Chlorobenzene	ND	0.0050	1	10/06/2016 21:57
Chloroethane	ND	0.0050	1	10/06/2016 21:57
Chloroform	ND	0.0050	1	10/06/2016 21:57
Chloromethane	ND	0.0050	1	10/06/2016 21:57
2-Chlorotoluene	ND	0.0050	1	10/06/2016 21:57
4-Chlorotoluene	ND	0.0050	1	10/06/2016 21:57
Dibromochloromethane	ND	0.0050	1	10/06/2016 21:57
1,2-Dibromo-3-chloropropane	ND	0.0040	1	10/06/2016 21:57
1,2-Dibromoethane (EDB)	ND	0.0040	1	10/06/2016 21:57
Dibromomethane	ND	0.0050	1	10/06/2016 21:57
1,2-Dichlorobenzene	ND	0.0050	1	10/06/2016 21:57
1,3-Dichlorobenzene	ND	0.0050	1	10/06/2016 21:57
1,4-Dichlorobenzene	ND	0.0050	1	10/06/2016 21:57
Dichlorodifluoromethane	ND	0.0050	1	10/06/2016 21:57
1,1-Dichloroethane	ND	0.0050	1	10/06/2016 21:57
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	10/06/2016 21:57
1,1-Dichloroethene	ND	0.0050	1	10/06/2016 21:57
cis-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 21:57
trans-1,2-Dichloroethene	ND	0.0050	1	10/06/2016 21:57
1,2-Dichloropropane	ND	0.0050	1	10/06/2016 21:57
1,3-Dichloropropane	ND	0.0050	1	10/06/2016 21:57
2,2-Dichloropropane	ND	0.0050	1	10/06/2016 21:57

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC18**	**127419**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	10/06/2016 21:57
cis-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 21:57
trans-1,3-Dichloropropene	ND	0.0050	1	10/06/2016 21:57
Diisopropyl ether (DIPE)	ND	0.0050	1	10/06/2016 21:57
Ethylbenzene	ND	0.0050	1	10/06/2016 21:57
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	10/06/2016 21:57
Freon 113	ND	0.0050	1	10/06/2016 21:57
Hexachlorobutadiene	ND	0.0050	1	10/06/2016 21:57
Hexachloroethane	ND	0.0050	1	10/06/2016 21:57
2-Hexanone	ND	0.0050	1	10/06/2016 21:57
Isopropylbenzene	ND	0.0050	1	10/06/2016 21:57
4-Isopropyl toluene	ND	0.0050	1	10/06/2016 21:57
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	10/06/2016 21:57
Methylene chloride	ND	0.0050	1	10/06/2016 21:57
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	10/06/2016 21:57
Naphthalene	ND	0.0050	1	10/06/2016 21:57
n-Propyl benzene	ND	0.0050	1	10/06/2016 21:57
Styrene	ND	0.0050	1	10/06/2016 21:57
1,1,1,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 21:57
1,1,2,2-Tetrachloroethane	ND	0.0050	1	10/06/2016 21:57
Tetrachloroethene	ND	0.0050	1	10/06/2016 21:57
Toluene	ND	0.0050	1	10/06/2016 21:57
1,2,3-Trichlorobenzene	ND	0.0050	1	10/06/2016 21:57
1,2,4-Trichlorobenzene	ND	0.0050	1	10/06/2016 21:57
1,1,1-Trichloroethane	ND	0.0050	1	10/06/2016 21:57
1,1,2-Trichloroethane	ND	0.0050	1	10/06/2016 21:57
Trichloroethene	ND	0.0050	1	10/06/2016 21:57
Trichlorofluoromethane	ND	0.0050	1	10/06/2016 21:57
1,2,3-Trichloropropane	ND	0.0050	1	10/06/2016 21:57
1,2,4-Trimethylbenzene	ND	0.0050	1	10/06/2016 21:57
1,3,5-Trimethylbenzene	ND	0.0050	1	10/06/2016 21:57
Vinyl Chloride	ND	0.0050	1	10/06/2016 21:57
Xylenes, Total	ND	0.0050	1	10/06/2016 21:57

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW5030B
Date Prepared:	9/30/16	**Analytical Method:**	SW8260B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC18**	**127419**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	99	70-130		10/06/2016 21:57
Toluene-d8	108	70-130		10/06/2016 21:57
4-BFB	108	70-130		10/06/2016 21:57
Benzene-d6	103	60-140		10/06/2016 21:57
Ethylbenzene-d10	114	60-140		10/06/2016 21:57
1,2-DCB-d4	87	60-140		10/06/2016 21:57

Analyst(s): KF

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC17**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 17:56
Acenaphthylene	ND	0.25	1	10/04/2016 17:56
Acetochlor	ND	0.25	1	10/04/2016 17:56
Anthracene	ND	0.25	1	10/04/2016 17:56
Benzidine	ND	1.3	1	10/04/2016 17:56
Benzo (a) anthracene	ND	0.25	1	10/04/2016 17:56
Benzo (a) pyrene	ND	0.25	1	10/04/2016 17:56
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 17:56
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 17:56
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 17:56
Benzyl Alcohol	ND	1.3	1	10/04/2016 17:56
1,1-Biphenyl	ND	0.25	1	10/04/2016 17:56
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 17:56
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 17:56
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 17:56
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 17:56
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 17:56
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:56
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 17:56
4-Chloroaniline	ND	0.50	1	10/04/2016 17:56
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 17:56
2-Chloronaphthalene	ND	0.25	1	10/04/2016 17:56
2-Chlorophenol	ND	0.25	1	10/04/2016 17:56
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 17:56
Chrysene	ND	0.25	1	10/04/2016 17:56
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 17:56
Dibenzofuran	ND	0.25	1	10/04/2016 17:56
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 17:56
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 17:56
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 17:56
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 17:56
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 17:56
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 17:56
Diethyl Phthalate	ND	0.25	1	10/04/2016 17:56
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 17:56
Dimethyl Phthalate	ND	0.25	1	10/04/2016 17:56
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 17:56

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC17**	**127523**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 17:56
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 17:56
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 17:56
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 17:56
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 17:56
Fluoranthene	ND	0.25	1	10/04/2016 17:56
Fluorene	ND	0.25	1	10/04/2016 17:56
Hexachlorobenzene	ND	0.25	1	10/04/2016 17:56
Hexachlorobutadiene	ND	0.25	1	10/04/2016 17:56
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 17:56
Hexachloroethane	ND	0.25	1	10/04/2016 17:56
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 17:56
Isophorone	ND	0.25	1	10/04/2016 17:56
2-Methylnaphthalene	ND	0.25	1	10/04/2016 17:56
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 17:56
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 17:56
Naphthalene	ND	0.25	1	10/04/2016 17:56
2-Nitroaniline	ND	1.3	1	10/04/2016 17:56
3-Nitroaniline	ND	1.3	1	10/04/2016 17:56
4-Nitroaniline	ND	1.3	1	10/04/2016 17:56
Nitrobenzene	ND	0.25	1	10/04/2016 17:56
2-Nitrophenol	ND	1.3	1	10/04/2016 17:56
4-Nitrophenol	ND	1.3	1	10/04/2016 17:56
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 17:56
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 17:56
Pentachlorophenol	ND	1.3	1	10/04/2016 17:56
Phenanthrene	ND	0.25	1	10/04/2016 17:56
Phenol	ND	0.25	1	10/04/2016 17:56
Pyrene	ND	0.25	1	10/04/2016 17:56
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 17:56
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 17:56
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 17:56

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 8.5-9.0 ft	**1609E06-010A**	**Soil**	**09/29/2016 13:30**	**GC17**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	100	30-130		10/04/2016 17:56
Phenol-d5	90	30-130		10/04/2016 17:56
Nitrobenzene-d5	87	30-130		10/04/2016 17:56
2-Fluorobiphenyl	78	30-130		10/04/2016 17:56
2,4,6-Tribromophenol	74	16-130		10/04/2016 17:56
4-Terphenyl-d14	81	30-130		10/04/2016 17:56

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 11:13
Acenaphthylene	ND	0.25	1	10/05/2016 11:13
Acetochlor	ND	0.25	1	10/05/2016 11:13
Anthracene	ND	0.25	1	10/05/2016 11:13
Benzidine	ND	1.3	1	10/05/2016 11:13
Benzo (a) anthracene	ND	0.25	1	10/05/2016 11:13
Benzo (a) pyrene	ND	0.25	1	10/05/2016 11:13
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 11:13
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 11:13
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 11:13
Benzyl Alcohol	ND	1.3	1	10/05/2016 11:13
1,1-Biphenyl	ND	0.25	1	10/05/2016 11:13
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 11:13
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 11:13
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 11:13
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 11:13
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 11:13
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 11:13
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 11:13
4-Chloroaniline	ND	0.50	1	10/05/2016 11:13
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 11:13
2-Chloronaphthalene	ND	0.25	1	10/05/2016 11:13
2-Chlorophenol	ND	0.25	1	10/05/2016 11:13
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 11:13
Chrysene	ND	0.25	1	10/05/2016 11:13
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 11:13
Dibenzofuran	ND	0.25	1	10/05/2016 11:13
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 11:13
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 11:13
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 11:13
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 11:13
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 11:13
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 11:13
Diethyl Phthalate	ND	0.25	1	10/05/2016 11:13
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 11:13
Dimethyl Phthalate	ND	0.25	1	10/05/2016 11:13
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 11:13

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 11:13
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 11:13
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 11:13
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 11:13
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 11:13
Fluoranthene	ND	0.25	1	10/05/2016 11:13
Fluorene	ND	0.25	1	10/05/2016 11:13
Hexachlorobenzene	ND	0.25	1	10/05/2016 11:13
Hexachlorobutadiene	ND	0.25	1	10/05/2016 11:13
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 11:13
Hexachloroethane	ND	0.25	1	10/05/2016 11:13
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 11:13
Isophorone	ND	0.25	1	10/05/2016 11:13
2-Methylnaphthalene	ND	0.25	1	10/05/2016 11:13
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 11:13
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 11:13
Naphthalene	ND	0.25	1	10/05/2016 11:13
2-Nitroaniline	ND	1.3	1	10/05/2016 11:13
3-Nitroaniline	ND	1.3	1	10/05/2016 11:13
4-Nitroaniline	ND	1.3	1	10/05/2016 11:13
Nitrobenzene	ND	0.25	1	10/05/2016 11:13
2-Nitrophenol	ND	1.3	1	10/05/2016 11:13
4-Nitrophenol	ND	1.3	1	10/05/2016 11:13
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 11:13
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 11:13
Pentachlorophenol	ND	1.3	1	10/05/2016 11:13
Phenanthrene	ND	0.25	1	10/05/2016 11:13
Phenol	ND	0.25	1	10/05/2016 11:13
Pyrene	ND	0.25	1	10/05/2016 11:13
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 11:13
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 11:13
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 11:13

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 24.5-25.0 ft	**1609E06-011A**	**Soil**	**09/29/2016 14:00**	**GC21**	**127523**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	88	30-130		10/05/2016 11:13
Phenol-d5	81	30-130		10/05/2016 11:13
Nitrobenzene-d5	84	30-130		10/05/2016 11:13
2-Fluorobiphenyl	76	30-130		10/05/2016 11:13
2,4,6-Tribromophenol	64	16-130		10/05/2016 11:13
4-Terphenyl-d14	84	30-130		10/05/2016 11:13

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 11:41
Acenaphthylene	ND	0.25	1	10/05/2016 11:41
Acetochlor	ND	0.25	1	10/05/2016 11:41
Anthracene	ND	0.25	1	10/05/2016 11:41
Benzidine	ND	1.3	1	10/05/2016 11:41
Benzo (a) anthracene	ND	0.25	1	10/05/2016 11:41
Benzo (a) pyrene	ND	0.25	1	10/05/2016 11:41
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 11:41
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 11:41
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 11:41
Benzyl Alcohol	ND	1.3	1	10/05/2016 11:41
1,1-Biphenyl	ND	0.25	1	10/05/2016 11:41
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 11:41
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 11:41
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 11:41
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 11:41
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 11:41
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 11:41
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 11:41
4-Chloroaniline	ND	0.50	1	10/05/2016 11:41
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 11:41
2-Chloronaphthalene	ND	0.25	1	10/05/2016 11:41
2-Chlorophenol	ND	0.25	1	10/05/2016 11:41
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 11:41
Chrysene	ND	0.25	1	10/05/2016 11:41
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 11:41
Dibenzofuran	ND	0.25	1	10/05/2016 11:41
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 11:41
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 11:41
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 11:41
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 11:41
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 11:41
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 11:41
Diethyl Phthalate	ND	0.25	1	10/05/2016 11:41
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 11:41
Dimethyl Phthalate	ND	0.25	1	10/05/2016 11:41
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 11:41

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 11:41
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 11:41
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 11:41
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 11:41
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 11:41
Fluoranthene	ND	0.25	1	10/05/2016 11:41
Fluorene	ND	0.25	1	10/05/2016 11:41
Hexachlorobenzene	ND	0.25	1	10/05/2016 11:41
Hexachlorobutadiene	ND	0.25	1	10/05/2016 11:41
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 11:41
Hexachloroethane	ND	0.25	1	10/05/2016 11:41
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 11:41
Isophorone	ND	0.25	1	10/05/2016 11:41
2-Methylnaphthalene	ND	0.25	1	10/05/2016 11:41
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 11:41
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 11:41
Naphthalene	ND	0.25	1	10/05/2016 11:41
2-Nitroaniline	ND	1.3	1	10/05/2016 11:41
3-Nitroaniline	ND	1.3	1	10/05/2016 11:41
4-Nitroaniline	ND	1.3	1	10/05/2016 11:41
Nitrobenzene	ND	0.25	1	10/05/2016 11:41
2-Nitrophenol	ND	1.3	1	10/05/2016 11:41
4-Nitrophenol	ND	1.3	1	10/05/2016 11:41
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 11:41
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 11:41
Pentachlorophenol	ND	1.3	1	10/05/2016 11:41
Phenanthrene	ND	0.25	1	10/05/2016 11:41
Phenol	ND	0.25	1	10/05/2016 11:41
Pyrene	ND	0.25	1	10/05/2016 11:41
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 11:41
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 11:41
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 11:41

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50.0-50.5 ft	**1609E06-012A**	**Soil**	**09/29/2016 14:05**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	99	30-130		10/05/2016 11:41
Phenol-d5	90	30-130		10/05/2016 11:41
Nitrobenzene-d5	87	30-130		10/05/2016 11:41
2-Fluorobiphenyl	78	30-130		10/05/2016 11:41
2,4,6-Tribromophenol	60	16-130		10/05/2016 11:41
4-Terphenyl-d14	87	30-130		10/05/2016 11:41

Analyst(s): REB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 10/4/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW3550B
Analytical Method: SW8270C
Unit: mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 12:09
Acenaphthylene	ND	0.25	1	10/05/2016 12:09
Acetochlor	ND	0.25	1	10/05/2016 12:09
Anthracene	ND	0.25	1	10/05/2016 12:09
Benzidine	ND	1.3	1	10/05/2016 12:09
Benzo (a) anthracene	ND	0.25	1	10/05/2016 12:09
Benzo (a) pyrene	ND	0.25	1	10/05/2016 12:09
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 12:09
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 12:09
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 12:09
Benzyl Alcohol	ND	1.3	1	10/05/2016 12:09
1,1-Biphenyl	ND	0.25	1	10/05/2016 12:09
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 12:09
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 12:09
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 12:09
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 12:09
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 12:09
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 12:09
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 12:09
4-Chloroaniline	ND	0.50	1	10/05/2016 12:09
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 12:09
2-Chloronaphthalene	ND	0.25	1	10/05/2016 12:09
2-Chlorophenol	ND	0.25	1	10/05/2016 12:09
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 12:09
Chrysene	ND	0.25	1	10/05/2016 12:09
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 12:09
Dibenzofuran	ND	0.25	1	10/05/2016 12:09
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 12:09
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 12:09
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 12:09
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 12:09
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 12:09
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 12:09
Diethyl Phthalate	ND	0.25	1	10/05/2016 12:09
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 12:09
Dimethyl Phthalate	ND	0.25	1	10/05/2016 12:09
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 12:09

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 12:09
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 12:09
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 12:09
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 12:09
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 12:09
Fluoranthene	ND	0.25	1	10/05/2016 12:09
Fluorene	ND	0.25	1	10/05/2016 12:09
Hexachlorobenzene	ND	0.25	1	10/05/2016 12:09
Hexachlorobutadiene	ND	0.25	1	10/05/2016 12:09
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 12:09
Hexachloroethane	ND	0.25	1	10/05/2016 12:09
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 12:09
Isophorone	ND	0.25	1	10/05/2016 12:09
2-Methylnaphthalene	ND	0.25	1	10/05/2016 12:09
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 12:09
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 12:09
Naphthalene	ND	0.25	1	10/05/2016 12:09
2-Nitroaniline	ND	1.3	1	10/05/2016 12:09
3-Nitroaniline	ND	1.3	1	10/05/2016 12:09
4-Nitroaniline	ND	1.3	1	10/05/2016 12:09
Nitrobenzene	ND	0.25	1	10/05/2016 12:09
2-Nitrophenol	ND	1.3	1	10/05/2016 12:09
4-Nitrophenol	ND	1.3	1	10/05/2016 12:09
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 12:09
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 12:09
Pentachlorophenol	ND	1.3	1	10/05/2016 12:09
Phenanthrene	ND	0.25	1	10/05/2016 12:09
Phenol	ND	0.25	1	10/05/2016 12:09
Pyrene	ND	0.25	1	10/05/2016 12:09
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 12:09
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 12:09
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 12:09

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65.0-65.5 ft	**1609E06-013A**	**Soil**	**09/29/2016 15:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	108	30-130		10/05/2016 12:09
Phenol-d5	99	30-130		10/05/2016 12:09
Nitrobenzene-d5	99	30-130		10/05/2016 12:09
2-Fluorobiphenyl	90	30-130		10/05/2016 12:09
2,4,6-Tribromophenol	66	16-130		10/05/2016 12:09
4-Terphenyl-d14	97	30-130		10/05/2016 12:09

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 12:37
Acenaphthylene	ND	0.25	1	10/05/2016 12:37
Acetochlor	ND	0.25	1	10/05/2016 12:37
Anthracene	ND	0.25	1	10/05/2016 12:37
Benzidine	ND	1.3	1	10/05/2016 12:37
Benzo (a) anthracene	ND	0.25	1	10/05/2016 12:37
Benzo (a) pyrene	ND	0.25	1	10/05/2016 12:37
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 12:37
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 12:37
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 12:37
Benzyl Alcohol	ND	1.3	1	10/05/2016 12:37
1,1-Biphenyl	ND	0.25	1	10/05/2016 12:37
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 12:37
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 12:37
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 12:37
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 12:37
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 12:37
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 12:37
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 12:37
4-Chloroaniline	ND	0.50	1	10/05/2016 12:37
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 12:37
2-Chloronaphthalene	ND	0.25	1	10/05/2016 12:37
2-Chlorophenol	ND	0.25	1	10/05/2016 12:37
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 12:37
Chrysene	ND	0.25	1	10/05/2016 12:37
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 12:37
Dibenzofuran	ND	0.25	1	10/05/2016 12:37
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 12:37
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 12:37
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 12:37
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 12:37
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 12:37
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 12:37
Diethyl Phthalate	ND	0.25	1	10/05/2016 12:37
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 12:37
Dimethyl Phthalate	ND	0.25	1	10/05/2016 12:37
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 12:37

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 12:37
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 12:37
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 12:37
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 12:37
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 12:37
Fluoranthene	ND	0.25	1	10/05/2016 12:37
Fluorene	ND	0.25	1	10/05/2016 12:37
Hexachlorobenzene	ND	0.25	1	10/05/2016 12:37
Hexachlorobutadiene	ND	0.25	1	10/05/2016 12:37
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 12:37
Hexachloroethane	ND	0.25	1	10/05/2016 12:37
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 12:37
Isophorone	ND	0.25	1	10/05/2016 12:37
2-Methylnaphthalene	ND	0.25	1	10/05/2016 12:37
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 12:37
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 12:37
Naphthalene	ND	0.25	1	10/05/2016 12:37
2-Nitroaniline	ND	1.3	1	10/05/2016 12:37
3-Nitroaniline	ND	1.3	1	10/05/2016 12:37
4-Nitroaniline	ND	1.3	1	10/05/2016 12:37
Nitrobenzene	ND	0.25	1	10/05/2016 12:37
2-Nitrophenol	ND	1.3	1	10/05/2016 12:37
4-Nitrophenol	ND	1.3	1	10/05/2016 12:37
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 12:37
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 12:37
Pentachlorophenol	ND	1.3	1	10/05/2016 12:37
Phenanthrene	ND	0.25	1	10/05/2016 12:37
Phenol	ND	0.25	1	10/05/2016 12:37
Pyrene	ND	0.25	1	10/05/2016 12:37
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 12:37
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 12:37
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 12:37

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80.0-80.5 ft	**1609E06-014A**	**Soil**	**09/29/2016 16:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	95	30-130		10/05/2016 12:37
Phenol-d5	88	30-130		10/05/2016 12:37
Nitrobenzene-d5	86	30-130		10/05/2016 12:37
2-Fluorobiphenyl	77	30-130		10/05/2016 12:37
2,4,6-Tribromophenol	58	16-130		10/05/2016 12:37
4-Terphenyl-d14	84	30-130		10/05/2016 12:37

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	**1609E06-015A**	**Soil**	**09/29/2016 17:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 13:05
Acenaphthylene	ND	0.25	1	10/05/2016 13:05
Acetochlor	ND	0.25	1	10/05/2016 13:05
Anthracene	ND	0.25	1	10/05/2016 13:05
Benzidine	ND	1.3	1	10/05/2016 13:05
Benzo (a) anthracene	ND	0.25	1	10/05/2016 13:05
Benzo (a) pyrene	ND	0.25	1	10/05/2016 13:05
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 13:05
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 13:05
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 13:05
Benzyl Alcohol	ND	1.3	1	10/05/2016 13:05
1,1-Biphenyl	ND	0.25	1	10/05/2016 13:05
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 13:05
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 13:05
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 13:05
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 13:05
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 13:05
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 13:05
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 13:05
4-Chloroaniline	ND	0.50	1	10/05/2016 13:05
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 13:05
2-Chloronaphthalene	ND	0.25	1	10/05/2016 13:05
2-Chlorophenol	ND	0.25	1	10/05/2016 13:05
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 13:05
Chrysene	ND	0.25	1	10/05/2016 13:05
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 13:05
Dibenzofuran	ND	0.25	1	10/05/2016 13:05
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 13:05
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 13:05
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 13:05
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 13:05
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 13:05
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 13:05
Diethyl Phthalate	ND	0.25	1	10/05/2016 13:05
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 13:05
Dimethyl Phthalate	ND	0.25	1	10/05/2016 13:05
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 13:05

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	**1609E06-015A**	**Soil**	**09/29/2016 17:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 13:05
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 13:05
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 13:05
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 13:05
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 13:05
Fluoranthene	ND	0.25	1	10/05/2016 13:05
Fluorene	ND	0.25	1	10/05/2016 13:05
Hexachlorobenzene	ND	0.25	1	10/05/2016 13:05
Hexachlorobutadiene	ND	0.25	1	10/05/2016 13:05
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 13:05
Hexachloroethane	ND	0.25	1	10/05/2016 13:05
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 13:05
Isophorone	ND	0.25	1	10/05/2016 13:05
2-Methylnaphthalene	ND	0.25	1	10/05/2016 13:05
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 13:05
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 13:05
Naphthalene	ND	0.25	1	10/05/2016 13:05
2-Nitroaniline	ND	1.3	1	10/05/2016 13:05
3-Nitroaniline	ND	1.3	1	10/05/2016 13:05
4-Nitroaniline	ND	1.3	1	10/05/2016 13:05
Nitrobenzene	ND	0.25	1	10/05/2016 13:05
2-Nitrophenol	ND	1.3	1	10/05/2016 13:05
4-Nitrophenol	ND	1.3	1	10/05/2016 13:05
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 13:05
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 13:05
Pentachlorophenol	ND	1.3	1	10/05/2016 13:05
Phenanthrene	ND	0.25	1	10/05/2016 13:05
Phenol	ND	0.25	1	10/05/2016 13:05
Pyrene	ND	0.25	1	10/05/2016 13:05
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 13:05
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 13:05
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 13:05

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100.5-101.0 ft	**1609E06-015A**	**Soil**	**09/29/2016 17:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	114	30-130		10/05/2016 13:05
Phenol-d5	102	30-130		10/05/2016 13:05
Nitrobenzene-d5	110	30-130		10/05/2016 13:05
2-Fluorobiphenyl	100	30-130		10/05/2016 13:05
2,4,6-Tribromophenol	75	16-130		10/05/2016 13:05
4-Terphenyl-d14	110	30-130		10/05/2016 13:05

Analyst(s): REB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 13:33
Acenaphthylene	ND	0.25	1	10/05/2016 13:33
Acetochlor	ND	0.25	1	10/05/2016 13:33
Anthracene	ND	0.25	1	10/05/2016 13:33
Benzidine	ND	1.3	1	10/05/2016 13:33
Benzo (a) anthracene	ND	0.25	1	10/05/2016 13:33
Benzo (a) pyrene	ND	0.25	1	10/05/2016 13:33
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 13:33
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 13:33
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 13:33
Benzyl Alcohol	ND	1.3	1	10/05/2016 13:33
1,1-Biphenyl	ND	0.25	1	10/05/2016 13:33
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 13:33
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 13:33
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 13:33
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 13:33
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 13:33
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 13:33
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 13:33
4-Chloroaniline	ND	0.50	1	10/05/2016 13:33
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 13:33
2-Chloronaphthalene	ND	0.25	1	10/05/2016 13:33
2-Chlorophenol	ND	0.25	1	10/05/2016 13:33
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 13:33
Chrysene	ND	0.25	1	10/05/2016 13:33
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 13:33
Dibenzofuran	ND	0.25	1	10/05/2016 13:33
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 13:33
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 13:33
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 13:33
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 13:33
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 13:33
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 13:33
Diethyl Phthalate	ND	0.25	1	10/05/2016 13:33
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 13:33
Dimethyl Phthalate	ND	0.25	1	10/05/2016 13:33
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 13:33

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 13:33
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 13:33
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 13:33
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 13:33
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 13:33
Fluoranthene	ND	0.25	1	10/05/2016 13:33
Fluorene	ND	0.25	1	10/05/2016 13:33
Hexachlorobenzene	ND	0.25	1	10/05/2016 13:33
Hexachlorobutadiene	ND	0.25	1	10/05/2016 13:33
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 13:33
Hexachloroethane	ND	0.25	1	10/05/2016 13:33
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 13:33
Isophorone	ND	0.25	1	10/05/2016 13:33
2-Methylnaphthalene	ND	0.25	1	10/05/2016 13:33
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 13:33
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 13:33
Naphthalene	ND	0.25	1	10/05/2016 13:33
2-Nitroaniline	ND	1.3	1	10/05/2016 13:33
3-Nitroaniline	ND	1.3	1	10/05/2016 13:33
4-Nitroaniline	ND	1.3	1	10/05/2016 13:33
Nitrobenzene	ND	0.25	1	10/05/2016 13:33
2-Nitrophenol	ND	1.3	1	10/05/2016 13:33
4-Nitrophenol	ND	1.3	1	10/05/2016 13:33
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 13:33
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 13:33
Pentachlorophenol	ND	1.3	1	10/05/2016 13:33
Phenanthrene	ND	0.25	1	10/05/2016 13:33
Phenol	ND	0.25	1	10/05/2016 13:33
Pyrene	ND	0.25	1	10/05/2016 13:33
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 13:33
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 13:33
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 13:33

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125.0-125.5 ft	**1609E06-016A**	**Soil**	**09/30/2016 09:15**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	117	30-130		10/05/2016 13:33
Phenol-d5	110	30-130		10/05/2016 13:33
Nitrobenzene-d5	104	30-130		10/05/2016 13:33
2-Fluorobiphenyl	95	30-130		10/05/2016 13:33
2,4,6-Tribromophenol	81	16-130		10/05/2016 13:33
4-Terphenyl-d14	105	30-130		10/05/2016 13:33

Analyst(s): REB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/04/2016 23:02
Acenaphthylene	ND	0.25	1	10/04/2016 23:02
Acetochlor	ND	0.25	1	10/04/2016 23:02
Anthracene	ND	0.25	1	10/04/2016 23:02
Benzidine	ND	1.3	1	10/04/2016 23:02
Benzo (a) anthracene	ND	0.25	1	10/04/2016 23:02
Benzo (a) pyrene	ND	0.25	1	10/04/2016 23:02
Benzo (b) fluoranthene	ND	0.25	1	10/04/2016 23:02
Benzo (g,h,i) perylene	ND	0.25	1	10/04/2016 23:02
Benzo (k) fluoranthene	ND	0.25	1	10/04/2016 23:02
Benzyl Alcohol	ND	1.3	1	10/04/2016 23:02
1,1-Biphenyl	ND	0.25	1	10/04/2016 23:02
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/04/2016 23:02
Bis (2-chloroethyl) Ether	ND	0.25	1	10/04/2016 23:02
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/04/2016 23:02
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/04/2016 23:02
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/04/2016 23:02
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/04/2016 23:02
Butylbenzyl Phthalate	ND	0.25	1	10/04/2016 23:02
4-Chloroaniline	ND	0.50	1	10/04/2016 23:02
4-Chloro-3-methylphenol	ND	0.25	1	10/04/2016 23:02
2-Chloronaphthalene	ND	0.25	1	10/04/2016 23:02
2-Chlorophenol	ND	0.25	1	10/04/2016 23:02
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/04/2016 23:02
Chrysene	ND	0.25	1	10/04/2016 23:02
Dibenzo (a,h) anthracene	ND	0.25	1	10/04/2016 23:02
Dibenzofuran	ND	0.25	1	10/04/2016 23:02
Di-n-butyl Phthalate	ND	0.25	1	10/04/2016 23:02
1,2-Dichlorobenzene	ND	0.25	1	10/04/2016 23:02
1,3-Dichlorobenzene	ND	0.25	1	10/04/2016 23:02
1,4-Dichlorobenzene	ND	0.25	1	10/04/2016 23:02
3,3-Dichlorobenzidine	ND	0.50	1	10/04/2016 23:02
2,4-Dichlorophenol	ND	0.25	1	10/04/2016 23:02
Diethyl Phthalate	ND	0.25	1	10/04/2016 23:02
2,4-Dimethylphenol	ND	0.25	1	10/04/2016 23:02
Dimethyl Phthalate	ND	0.25	1	10/04/2016 23:02
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/04/2016 23:02

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/04/2016 23:02
2,4-Dinitrotoluene	ND	0.25	1	10/04/2016 23:02
2,6-Dinitrotoluene	ND	0.25	1	10/04/2016 23:02
Di-n-octyl Phthalate	ND	0.50	1	10/04/2016 23:02
1,2-Diphenylhydrazine	ND	0.25	1	10/04/2016 23:02
Fluoranthene	ND	0.25	1	10/04/2016 23:02
Fluorene	ND	0.25	1	10/04/2016 23:02
Hexachlorobenzene	ND	0.25	1	10/04/2016 23:02
Hexachlorobutadiene	ND	0.25	1	10/04/2016 23:02
Hexachlorocyclopentadiene	ND	1.3	1	10/04/2016 23:02
Hexachloroethane	ND	0.25	1	10/04/2016 23:02
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/04/2016 23:02
Isophorone	ND	0.25	1	10/04/2016 23:02
2-Methylnaphthalene	ND	0.25	1	10/04/2016 23:02
2-Methylphenol (o-Cresol)	ND	0.25	1	10/04/2016 23:02
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/04/2016 23:02
Naphthalene	ND	0.25	1	10/04/2016 23:02
2-Nitroaniline	ND	1.3	1	10/04/2016 23:02
3-Nitroaniline	ND	1.3	1	10/04/2016 23:02
4-Nitroaniline	ND	1.3	1	10/04/2016 23:02
Nitrobenzene	ND	0.25	1	10/04/2016 23:02
2-Nitrophenol	ND	1.3	1	10/04/2016 23:02
4-Nitrophenol	ND	1.3	1	10/04/2016 23:02
N-Nitrosodiphenylamine	ND	0.25	1	10/04/2016 23:02
N-Nitrosodi-n-propylamine	ND	0.25	1	10/04/2016 23:02
Pentachlorophenol	ND	1.3	1	10/04/2016 23:02
Phenanthrene	ND	0.25	1	10/04/2016 23:02
Phenol	ND	0.25	1	10/04/2016 23:02
Pyrene	ND	0.25	1	10/04/2016 23:02
1,2,4-Trichlorobenzene	ND	0.25	1	10/04/2016 23:02
2,4,5-Trichlorophenol	ND	0.25	1	10/04/2016 23:02
2,4,6-Trichlorophenol	ND	0.25	1	10/04/2016 23:02

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 144.5-145.0 ft	**1609E06-017A**	**Soil**	**09/30/2016 09:40**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	116	30-130		10/04/2016 23:02
Phenol-d5	103	30-130		10/04/2016 23:02
Nitrobenzene-d5	104	30-130		10/04/2016 23:02
2-Fluorobiphenyl	99	30-130		10/04/2016 23:02
2,4,6-Tribromophenol	92	16-130		10/04/2016 23:02
4-Terphenyl-d14	111	30-130		10/04/2016 23:02

Analyst(s): REB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.25	1	10/05/2016 14:01
Acenaphthylene	ND	0.25	1	10/05/2016 14:01
Acetochlor	ND	0.25	1	10/05/2016 14:01
Anthracene	ND	0.25	1	10/05/2016 14:01
Benzidine	ND	1.3	1	10/05/2016 14:01
Benzo (a) anthracene	ND	0.25	1	10/05/2016 14:01
Benzo (a) pyrene	ND	0.25	1	10/05/2016 14:01
Benzo (b) fluoranthene	ND	0.25	1	10/05/2016 14:01
Benzo (g,h,i) perylene	ND	0.25	1	10/05/2016 14:01
Benzo (k) fluoranthene	ND	0.25	1	10/05/2016 14:01
Benzyl Alcohol	ND	1.3	1	10/05/2016 14:01
1,1-Biphenyl	ND	0.25	1	10/05/2016 14:01
Bis (2-chloroethoxy) Methane	ND	0.25	1	10/05/2016 14:01
Bis (2-chloroethyl) Ether	ND	0.25	1	10/05/2016 14:01
Bis (2-chloroisopropyl) Ether	ND	0.25	1	10/05/2016 14:01
Bis (2-ethylhexyl) Adipate	ND	0.25	1	10/05/2016 14:01
Bis (2-ethylhexyl) Phthalate	ND	0.25	1	10/05/2016 14:01
4-Bromophenyl Phenyl Ether	ND	0.25	1	10/05/2016 14:01
Butylbenzyl Phthalate	ND	0.25	1	10/05/2016 14:01
4-Chloroaniline	ND	0.50	1	10/05/2016 14:01
4-Chloro-3-methylphenol	ND	0.25	1	10/05/2016 14:01
2-Chloronaphthalene	ND	0.25	1	10/05/2016 14:01
2-Chlorophenol	ND	0.25	1	10/05/2016 14:01
4-Chlorophenyl Phenyl Ether	ND	0.25	1	10/05/2016 14:01
Chrysene	ND	0.25	1	10/05/2016 14:01
Dibenzo (a,h) anthracene	ND	0.25	1	10/05/2016 14:01
Dibenzofuran	ND	0.25	1	10/05/2016 14:01
Di-n-butyl Phthalate	ND	0.25	1	10/05/2016 14:01
1,2-Dichlorobenzene	ND	0.25	1	10/05/2016 14:01
1,3-Dichlorobenzene	ND	0.25	1	10/05/2016 14:01
1,4-Dichlorobenzene	ND	0.25	1	10/05/2016 14:01
3,3-Dichlorobenzidine	ND	0.50	1	10/05/2016 14:01
2,4-Dichlorophenol	ND	0.25	1	10/05/2016 14:01
Diethyl Phthalate	ND	0.25	1	10/05/2016 14:01
2,4-Dimethylphenol	ND	0.25	1	10/05/2016 14:01
Dimethyl Phthalate	ND	0.25	1	10/05/2016 14:01
4,6-Dinitro-2-methylphenol	ND	1.3	1	10/05/2016 14:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	6.3	1	10/05/2016 14:01
2,4-Dinitrotoluene	ND	0.25	1	10/05/2016 14:01
2,6-Dinitrotoluene	ND	0.25	1	10/05/2016 14:01
Di-n-octyl Phthalate	ND	0.50	1	10/05/2016 14:01
1,2-Diphenylhydrazine	ND	0.25	1	10/05/2016 14:01
Fluoranthene	ND	0.25	1	10/05/2016 14:01
Fluorene	ND	0.25	1	10/05/2016 14:01
Hexachlorobenzene	ND	0.25	1	10/05/2016 14:01
Hexachlorobutadiene	ND	0.25	1	10/05/2016 14:01
Hexachlorocyclopentadiene	ND	1.3	1	10/05/2016 14:01
Hexachloroethane	ND	0.25	1	10/05/2016 14:01
Indeno (1,2,3-cd) pyrene	ND	0.25	1	10/05/2016 14:01
Isophorone	ND	0.25	1	10/05/2016 14:01
2-Methylnaphthalene	ND	0.25	1	10/05/2016 14:01
2-Methylphenol (o-Cresol)	ND	0.25	1	10/05/2016 14:01
3 & 4-Methylphenol (m,p-Cresol)	ND	0.25	1	10/05/2016 14:01
Naphthalene	ND	0.25	1	10/05/2016 14:01
2-Nitroaniline	ND	1.3	1	10/05/2016 14:01
3-Nitroaniline	ND	1.3	1	10/05/2016 14:01
4-Nitroaniline	ND	1.3	1	10/05/2016 14:01
Nitrobenzene	ND	0.25	1	10/05/2016 14:01
2-Nitrophenol	ND	1.3	1	10/05/2016 14:01
4-Nitrophenol	ND	1.3	1	10/05/2016 14:01
N-Nitrosodiphenylamine	ND	0.25	1	10/05/2016 14:01
N-Nitrosodi-n-propylamine	ND	0.25	1	10/05/2016 14:01
Pentachlorophenol	ND	1.3	1	10/05/2016 14:01
Phenanthrene	ND	0.25	1	10/05/2016 14:01
Phenol	ND	0.25	1	10/05/2016 14:01
Pyrene	ND	0.25	1	10/05/2016 14:01
1,2,4-Trichlorobenzene	ND	0.25	1	10/05/2016 14:01
2,4,5-Trichlorophenol	ND	0.25	1	10/05/2016 14:01
2,4,6-Trichlorophenol	ND	0.25	1	10/05/2016 14:01

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW3550B
Date Prepared:	10/4/16	**Analytical Method:**	SW8270C
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 164.5-165.0 ft	**1609E06-018A**	**Soil**	**09/30/2016 11:00**	**GC21**	**127558**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	92	30-130		10/05/2016 14:01
Phenol-d5	85	30-130		10/05/2016 14:01
Nitrobenzene-d5	81	30-130		10/05/2016 14:01
2-Fluorobiphenyl	73	30-130		10/05/2016 14:01
2,4,6-Tribromophenol	57	16-130		10/05/2016 14:01
4-Terphenyl-d14	82	30-130		10/05/2016 14:01

Analyst(s): REB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/23/16	**Analytical Method:**	E350.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WC_SKALAR**	**130116**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 14:59

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WC_SKALAR**	**130127**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:09

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:15

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/23/16	**Analytical Method:**	E350.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WC_SKALAR**	**130127**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 15:07

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WC_SKALAR**	**130239**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:18

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WC_SKALAR**	**130127**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 15:11

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:21

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/23/16	**Analytical Method:**	E350.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WC_SKALAR**	**130127**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 15:15

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:24

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WC_SKALAR**	**130127**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	ND	0.10	1	11/21/2016 15:19

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:27

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/23/16	**Analytical Method:**	E350.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WC_SKALAR**	**130127**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 15:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:30

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WC_SKALAR**	**130127**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 15:51

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 13:33

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E350.1
Date Prepared:	11/21/16-11/23/16	**Analytical Method:**	E350.1
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Ammonia As Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WC_SKALAR**	**130127**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/21/2016 15:55

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WC_SKALAR**	**130283**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Ammonia, total as N	ND		0.10	1	11/22/2016 14:21

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.9**		1.00	1	11/22/2016 15:12
Carbonate	ND		1.00	1	11/22/2016 15:12
Bicarbonate	**32.9**		1.00	1	11/22/2016 15:12
Hydroxide	ND		1.00	1	11/22/2016 15:12

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**Titrino**	**130218**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**38.9**		1.00	1	11/22/2016 15:15
Carbonate	ND		1.00	1	11/22/2016 15:15
Bicarbonate	**38.9**		1.00	1	11/22/2016 15:15
Hydroxide	ND		1.00	1	11/22/2016 15:15

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**33.1**		1.00	1	11/22/2016 15:23
Carbonate	ND		1.00	1	11/22/2016 15:23
Bicarbonate	**33.1**		1.00	1	11/22/2016 15:23
Hydroxide	ND		1.00	1	11/22/2016 15:23

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**40.0**		1.00	1	11/22/2016 15:25
Carbonate	ND		1.00	1	11/22/2016 15:25
Bicarbonate	**40.0**		1.00	1	11/22/2016 15:25
Hydroxide	ND		1.00	1	11/22/2016 15:25

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.0**		1.00	1	11/22/2016 15:28
Carbonate	ND		1.00	1	11/22/2016 15:28
Bicarbonate	**32.0**		1.00	1	11/22/2016 15:28
Hydroxide	ND		1.00	1	11/22/2016 15:28

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.1**		1.00	1	11/22/2016 15:30
Carbonate	ND		1.00	1	11/22/2016 15:30
Bicarbonate	**39.1**		1.00	1	11/22/2016 15:30
Hydroxide	ND		1.00	1	11/22/2016 15:30

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**33.2**		1.00	1	11/22/2016 15:33
Carbonate	ND		1.00	1	11/22/2016 15:33
Bicarbonate	**33.2**		1.00	1	11/22/2016 15:33
Hydroxide	ND		1.00	1	11/22/2016 15:33

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**40.0**		1.00	1	11/22/2016 15:35
Carbonate	ND		1.00	1	11/22/2016 15:35
Bicarbonate	**40.0**		1.00	1	11/22/2016 15:35
Hydroxide	ND		1.00	1	11/22/2016 15:35

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**31.8**		1.00	1	11/22/2016 15:38
Carbonate	ND		1.00	1	11/22/2016 15:38
Bicarbonate	**31.8**		1.00	1	11/22/2016 15:38
Hydroxide	ND		1.00	1	11/22/2016 15:38

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**38.8**		1.00	1	11/22/2016 15:40
Carbonate	ND		1.00	1	11/22/2016 15:40
Bicarbonate	**38.8**		1.00	1	11/22/2016 15:40
Hydroxide	ND		1.00	1	11/22/2016 15:40

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**31.3**		1.00	1	11/22/2016 15:43
Carbonate	ND		1.00	1	11/22/2016 15:43
Bicarbonate	**31.3**		1.00	1	11/22/2016 15:43
Hydroxide	ND		1.00	1	11/22/2016 15:43

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**37.4**		1.00	1	11/22/2016 15:46
Carbonate	ND		1.00	1	11/22/2016 15:46
Bicarbonate	**37.4**		1.00	1	11/22/2016 15:46
Hydroxide	ND		1.00	1	11/22/2016 15:46

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**33.4**		1.00	1	11/22/2016 15:51
Carbonate	ND		1.00	1	11/22/2016 15:51
Bicarbonate	**33.4**		1.00	1	11/22/2016 15:51
Hydroxide	ND		1.00	1	11/22/2016 15:51

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**40.7**		1.00	1	11/22/2016 15:54
Carbonate	ND		1.00	1	11/22/2016 15:54
Bicarbonate	**40.7**		1.00	1	11/22/2016 15:54
Hydroxide	ND		1.00	1	11/22/2016 15:54

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**32.7**		1.00	1	11/22/2016 15:56
Carbonate	ND		1.00	1	11/22/2016 15:56
Bicarbonate	**32.7**		1.00	1	11/22/2016 15:56
Hydroxide	ND		1.00	1	11/22/2016 15:56

Analyst(s): HN

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2320 B-1997
Date Prepared:	11/22/16	**Analytical Method:**	SM2320 B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.6**		1.00	1	11/22/2016 15:59
Carbonate	ND		1.00	1	11/22/2016 15:59
Bicarbonate	**39.6**		1.00	1	11/22/2016 15:59
Hydroxide	ND		1.00	1	11/22/2016 15:59

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**33.1**		1.00	1	11/22/2016 16:01
Carbonate	ND		1.00	1	11/22/2016 16:01
Bicarbonate	**33.1**		1.00	1	11/22/2016 16:01
Hydroxide	ND		1.00	1	11/22/2016 16:01

Analyst(s): HN

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**Titrino**	**130224**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**40.1**		1.00	1	11/22/2016 16:04
Carbonate	ND		1.00	1	11/22/2016 16:04
Bicarbonate	**40.1**		1.00	1	11/22/2016 16:04
Hydroxide	ND		1.00	1	11/22/2016 16:04

Analyst(s): HN

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 17:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 17:56

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:08

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:08

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:12

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**SPECTROPHOTOMETER**	**130426**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:13

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:17

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:17

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	1609E06-005C	Soil	09/29/2016 16:00	SPECTROPHOTOMETER	130427

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:22

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	1609E06-005D	Soil	09/29/2016 16:00	SPECTROPHOTOMETER	130427

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:22

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	1609E06-006C	Soil	09/29/2016 17:00	SPECTROPHOTOMETER	130427

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:26

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	1609E06-006D	Soil	09/29/2016 17:00	SPECTROPHOTOMETER	130427

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:26

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:31

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:38

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**SPECTROPHOTOMETER**	**130427**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:38

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-Cl G
Date Prepared:	11/28/16	**Analytical Method:**	SM4500-Cl G
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**SPECTROPHOTOMETER**	**130428**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:39

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**SPECTROPHOTOMETER**	**130428**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Chlorine	ND		0.040	1	11/28/2016 18:42

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.53 @ 22.3°C**		1.00	1	11/21/2016 19:25

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.47 @ 22.1°C**		1.00	1	11/21/2016 19:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.44 @ 22.2°C**		1.00	1	11/21/2016 19:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.45 @ 22.2°C**		1.00	1	11/21/2016 19:40

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.47 @ 22.2°C**		1.00	1	11/21/2016 19:45

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130176**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.45 @ 22.2°C**		1.00	1	11/21/2016 19:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.44 @ 22.2°C**		1.00	1	11/21/2016 19:55

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.41 @ 22.2°C**		1.00	1	11/21/2016 20:05

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.44 @ 22.2°C**		1.00	1	11/21/2016 20:10

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.49 @ 22.3°C**		1.00	1	11/21/2016 20:15

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.40 @ 22.3°C**		1.00	1	11/21/2016 20:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130177**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.43 @ 22.2°C**		1.00	1	11/21/2016 20:25

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	1609E06-007C	Soil	09/30/2016 09:00	WetChem	130177

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.23 @ 22.3°C**		1.00	1	11/21/2016 20:30

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	1609E06-007D	Soil	09/30/2016 09:00	WetChem	130177

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.18 @ 22.3°C**		1.00	1	11/21/2016 20:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	1609E06-008C	Soil	09/30/2016 09:40	WetChem	130177

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.18 @ 22.3°C**		1.00	1	11/21/2016 20:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	1609E06-008D	Soil	09/30/2016 09:40	WetChem	130177

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.13 @ 22.3°C**		1.00	1	11/21/2016 20:45

Analyst(s): AL

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-O G-2001
Date Prepared:	11/21/16	**Analytical Method:**	SM4500-O G-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg DO/L @ °C

Dissolved Oxygen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130178**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**7.98 @ 22.3°C**		1.00	1	11/21/2016 20:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130178**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Dissolved Oxygen	**8.04 @ 22.3°C**		1.00	1	11/21/2016 21:00

Analyst(s): AL

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 09 ft HH	**1609E06-001B**	**Soil**	**09/29/2016 13:30**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 17:29
Arsenic	ND	2.0	1	10/21/2016 17:29
Calcium	**3900**	400	1	10/21/2016 17:29
Chromium	**32**	2.0	1	10/21/2016 17:29
Copper	**27**	2.0	1	10/21/2016 17:29
Iron	**23,000**	80	1	10/21/2016 17:29
Lead	**5.0**	2.0	1	10/21/2016 17:29
Magnesium	**8700**	80	1	10/21/2016 17:29
Manganese	**410**	20	1	10/21/2016 17:29
Mercury	ND	0.20	1	10/21/2016 17:29
Selenium	ND	2.0	1	10/21/2016 17:29
Uranium	ND	2.0	1	10/21/2016 17:29
Zinc	**47**	20	1	10/21/2016 17:29

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 25 ft HH	**1609E06-002B**	**Soil**	**09/29/2016 14:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**10,000**	200	1	10/21/2016 17:35
Arsenic	ND	2.0	1	10/21/2016 17:35
Calcium	**3700**	400	1	10/21/2016 17:35
Chromium	**29**	2.0	1	10/21/2016 17:35
Copper	**21**	2.0	1	10/21/2016 17:35
Iron	**20,000**	80	1	10/21/2016 17:35
Lead	**4.2**	2.0	1	10/21/2016 17:35
Magnesium	**7500**	80	1	10/21/2016 17:35
Manganese	**310**	20	1	10/21/2016 17:35
Mercury	ND	0.20	1	10/21/2016 17:35
Selenium	ND	2.0	1	10/21/2016 17:35
Uranium	ND	2.0	1	10/21/2016 17:35
Zinc	**39**	20	1	10/21/2016 17:35

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50 ft HH	**1609E06-003B**	**Soil**	**09/29/2016 14:45**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**8800**	200	1	10/21/2016 17:41
Arsenic	**2.4**	2.0	1	10/21/2016 17:41
Calcium	**3100**	400	1	10/21/2016 17:41
Chromium	**25**	2.0	1	10/21/2016 17:41
Copper	**20**	2.0	1	10/21/2016 17:41
Iron	**19,000**	80	1	10/21/2016 17:41
Lead	**6.2**	2.0	1	10/21/2016 17:41
Magnesium	**5700**	80	1	10/21/2016 17:41
Manganese	**390**	20	1	10/21/2016 17:41
Mercury	ND	0.20	1	10/21/2016 17:41
Selenium	ND	2.0	1	10/21/2016 17:41
Uranium	ND	2.0	1	10/21/2016 17:41
Zinc	**50**	20	1	10/21/2016 17:41

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65 ft HH	**1609E06-004B**	**Soil**	**09/29/2016 15:15**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**10,000**	200	1	10/21/2016 17:48
Arsenic	ND	2.0	1	10/21/2016 17:48
Calcium	**3900**	400	1	10/21/2016 17:48
Chromium	**29**	2.0	1	10/21/2016 17:48
Copper	**23**	2.0	1	10/21/2016 17:48
Iron	**19,000**	80	1	10/21/2016 17:48
Lead	**4.4**	2.0	1	10/21/2016 17:48
Magnesium	**7300**	80	1	10/21/2016 17:48
Manganese	**390**	20	1	10/21/2016 17:48
Mercury	ND	0.20	1	10/21/2016 17:48
Selenium	ND	2.0	1	10/21/2016 17:48
Uranium	ND	2.0	1	10/21/2016 17:48
Zinc	**39**	20	1	10/21/2016 17:48

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80 ft HH	**1609E06-005B**	**Soil**	**09/29/2016 16:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**8600**	200	1	10/21/2016 17:54
Arsenic	ND	2.0	1	10/21/2016 17:54
Calcium	**3000**	400	1	10/21/2016 17:54
Chromium	**32**	2.0	1	10/21/2016 17:54
Copper	**21**	2.0	1	10/21/2016 17:54
Iron	**19,000**	80	1	10/21/2016 17:54
Lead	**5.3**	2.0	1	10/21/2016 17:54
Magnesium	**7000**	80	1	10/21/2016 17:54
Manganese	**390**	20	1	10/21/2016 17:54
Mercury	ND	0.20	1	10/21/2016 17:54
Selenium	ND	2.0	1	10/21/2016 17:54
Uranium	ND	2.0	1	10/21/2016 17:54
Zinc	**44**	20	1	10/21/2016 17:54

Analyst(s): DB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 10/14/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: TM-7
Analytical Method: SW6020
Unit: mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100 ft HH	**1609E06-006B**	**Soil**	**09/29/2016 17:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**8600**	200	1	10/21/2016 18:00
Arsenic	**2.1**	2.0	1	10/21/2016 18:00
Calcium	**3000**	400	1	10/21/2016 18:00
Chromium	**27**	2.0	1	10/21/2016 18:00
Copper	**21**	2.0	1	10/21/2016 18:00
Iron	**19,000**	80	1	10/21/2016 18:00
Lead	**5.3**	2.0	1	10/21/2016 18:00
Magnesium	**6600**	80	1	10/21/2016 18:00
Manganese	**400**	20	1	10/21/2016 18:00
Mercury	ND	0.20	1	10/21/2016 18:00
Selenium	ND	2.0	1	10/21/2016 18:00
Uranium	ND	2.0	1	10/21/2016 18:00
Zinc	**46**	20	1	10/21/2016 18:00

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125 ft HH	**1609E06-007B**	**Soil**	**09/30/2016 09:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**12,000**	200	1	10/21/2016 18:07
Arsenic	ND	2.0	1	10/21/2016 18:07
Calcium	**4900**	400	1	10/21/2016 18:07
Chromium	**28**	2.0	1	10/21/2016 18:07
Copper	**23**	2.0	1	10/21/2016 18:07
Iron	**19,000**	80	1	10/21/2016 18:07
Lead	**3.9**	2.0	1	10/21/2016 18:07
Magnesium	**7700**	80	1	10/21/2016 18:07
Manganese	**390**	20	1	10/21/2016 18:07
Mercury	ND	0.20	1	10/21/2016 18:07
Selenium	ND	2.0	1	10/21/2016 18:07
Uranium	ND	2.0	1	10/21/2016 18:07
Zinc	**37**	20	1	10/21/2016 18:07

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 140 ft HH	**1609E06-008B**	**Soil**	**09/30/2016 09:40**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**11,000**	200	1	10/21/2016 18:13
Arsenic	ND	2.0	1	10/21/2016 18:13
Calcium	**4400**	400	1	10/21/2016 18:13
Chromium	**37**	2.0	1	10/21/2016 18:13
Copper	**23**	2.0	1	10/21/2016 18:13
Iron	**22,000**	80	1	10/21/2016 18:13
Lead	**4.7**	2.0	1	10/21/2016 18:13
Magnesium	**7600**	80	1	10/21/2016 18:13
Manganese	**450**	20	1	10/21/2016 18:13
Mercury	ND	0.20	1	10/21/2016 18:13
Selenium	ND	2.0	1	10/21/2016 18:13
Uranium	ND	2.0	1	10/21/2016 18:13
Zinc	**43**	20	1	10/21/2016 18:13

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/14/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 160 ft HH	**1609E06-009B**	**Soil**	**09/30/2016 11:00**	**ICP-MS2**	**128438**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	**13,000**	200	1	10/21/2016 18:19
Arsenic	ND	2.0	1	10/21/2016 18:19
Calcium	**4600**	400	1	10/21/2016 18:19
Chromium	**41**	2.0	1	10/21/2016 18:19
Copper	**28**	2.0	1	10/21/2016 18:19
Iron	**24,000**	80	1	10/21/2016 18:19
Lead	**4.7**	2.0	1	10/21/2016 18:19
Magnesium	**11,000**	80	1	10/21/2016 18:19
Manganese	**470**	20	1	10/21/2016 18:19
Mercury	ND	0.20	1	10/21/2016 18:19
Selenium	ND	2.0	1	10/21/2016 18:19
Uranium	ND	2.0	1	10/21/2016 18:19
Zinc	**46**	20	1	10/21/2016 18:19

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:39
Antimony	ND		0.00050	1	11/30/2016 16:39
Arsenic	**0.00066**		0.00050	1	11/30/2016 16:39
Barium	**0.013**		0.0050	1	11/30/2016 16:39
Beryllium	ND		0.00050	1	11/30/2016 16:39
Cadmium	ND		0.00025	1	11/30/2016 16:39
Calcium	**8.6**	B	0.10	1	11/30/2016 16:39
Chromium	**0.00076**		0.00050	1	11/30/2016 16:39
Cobalt	ND		0.00050	1	11/30/2016 16:39
Copper	**0.00052**		0.00050	1	11/30/2016 16:39
Iron	**0.029**		0.020	1	11/30/2016 16:39
Lead	ND		0.00050	1	11/30/2016 16:39
Lithium	ND		0.0050	1	11/30/2016 16:39
Magnesium	**4.2**	B	0.020	1	11/30/2016 16:39
Manganese	ND		0.020	1	11/30/2016 16:39
Mercury	**0.000057**		0.000050	1	11/30/2016 16:39
Molybdenum	**0.0050**		0.00050	1	11/30/2016 16:39
Nickel	ND		0.00050	1	11/30/2016 16:39
Potassium	**2.2**	B	0.020	1	11/30/2016 16:39
Selenium	ND		0.00050	1	11/30/2016 16:39
Silver	ND		0.00050	1	11/30/2016 16:39
Sodium	**28**	B	0.10	1	11/30/2016 16:39
Strontium	**0.070**		0.020	1	11/30/2016 16:39
Thallium	ND		0.00050	1	11/30/2016 16:39
Uranium	ND		0.00050	1	11/30/2016 16:39
Vanadium	**0.0016**		0.00050	1	11/30/2016 16:39
Zinc	ND		0.0050	1	11/30/2016 16:39

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:45
Antimony	ND		0.00050	1	11/30/2016 16:45
Arsenic	**0.00071**		0.00050	1	11/30/2016 16:45
Barium	**0.013**		0.0050	1	11/30/2016 16:45
Beryllium	ND		0.00050	1	11/30/2016 16:45
Cadmium	ND		0.00025	1	11/30/2016 16:45
Calcium	**8.8**	B	0.10	1	11/30/2016 16:45
Chromium	**0.00054**		0.00050	1	11/30/2016 16:45
Cobalt	ND		0.00050	1	11/30/2016 16:45
Copper	ND		0.00050	1	11/30/2016 16:45
Iron	ND		0.020	1	11/30/2016 16:45
Lead	ND		0.00050	1	11/30/2016 16:45
Lithium	ND		0.0050	1	11/30/2016 16:45
Magnesium	**4.1**	B	0.020	1	11/30/2016 16:45
Manganese	ND		0.020	1	11/30/2016 16:45
Mercury	ND		0.000050	1	11/30/2016 16:45
Molybdenum	**0.0046**		0.00050	1	11/30/2016 16:45
Nickel	ND		0.00050	1	11/30/2016 16:45
Potassium	**2.2**	B	0.020	1	11/30/2016 16:45
Selenium	ND		0.00050	1	11/30/2016 16:45
Silver	ND		0.00050	1	11/30/2016 16:45
Sodium	**30**	B	0.10	1	11/30/2016 16:45
Strontium	**0.070**		0.020	1	11/30/2016 16:45
Thallium	ND		0.00050	1	11/30/2016 16:45
Uranium	ND		0.00050	1	11/30/2016 16:45
Vanadium	**0.0017**		0.00050	1	11/30/2016 16:45
Zinc	ND		0.0050	1	11/30/2016 16:45

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:51
Antimony	ND		0.00050	1	11/30/2016 16:51
Arsenic	**0.00051**		0.00050	1	11/30/2016 16:51
Barium	**0.013**		0.0050	1	11/30/2016 16:51
Beryllium	ND		0.00050	1	11/30/2016 16:51
Cadmium	ND		0.00025	1	11/30/2016 16:51
Calcium	**9.3**	B	0.10	1	11/30/2016 16:51
Chromium	**0.00073**		0.00050	1	11/30/2016 16:51
Cobalt	ND		0.00050	1	11/30/2016 16:51
Copper	ND		0.00050	1	11/30/2016 16:51
Iron	ND		0.020	1	11/30/2016 16:51
Lead	ND		0.00050	1	11/30/2016 16:51
Lithium	ND		0.0050	1	11/30/2016 16:51
Magnesium	**4.1**	B	0.020	1	11/30/2016 16:51
Manganese	ND		0.020	1	11/30/2016 16:51
Mercury	ND		0.000050	1	11/30/2016 16:51
Molybdenum	**0.010**		0.00050	1	11/30/2016 16:51
Nickel	ND		0.00050	1	11/30/2016 16:51
Potassium	**2.1**	B	0.020	1	11/30/2016 16:51
Selenium	ND		0.00050	1	11/30/2016 16:51
Silver	ND		0.00050	1	11/30/2016 16:51
Sodium	**26**	B	0.10	1	11/30/2016 16:51
Strontium	**0.071**		0.020	1	11/30/2016 16:51
Thallium	ND		0.00050	1	11/30/2016 16:51
Uranium	ND		0.00050	1	11/30/2016 16:51
Vanadium	**0.0013**		0.00050	1	11/30/2016 16:51
Zinc	ND		0.0050	1	11/30/2016 16:51

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 16:57
Antimony	ND		0.00050	1	11/30/2016 16:57
Arsenic	**0.00054**		0.00050	1	11/30/2016 16:57
Barium	**0.013**		0.0050	1	11/30/2016 16:57
Beryllium	ND		0.00050	1	11/30/2016 16:57
Cadmium	ND		0.00025	1	11/30/2016 16:57
Calcium	**9.4**	B	0.10	1	11/30/2016 16:57
Chromium	**0.00080**		0.00050	1	11/30/2016 16:57
Cobalt	ND		0.00050	1	11/30/2016 16:57
Copper	ND		0.00050	1	11/30/2016 16:57
Iron	ND		0.020	1	11/30/2016 16:57
Lead	ND		0.00050	1	11/30/2016 16:57
Lithium	ND		0.0050	1	11/30/2016 16:57
Magnesium	**4.2**	B	0.020	1	11/30/2016 16:57
Manganese	ND		0.020	1	11/30/2016 16:57
Mercury	**0.000055**		0.000050	1	11/30/2016 16:57
Molybdenum	**0.012**		0.00050	1	11/30/2016 16:57
Nickel	ND		0.00050	1	11/30/2016 16:57
Potassium	**2.1**	B	0.020	1	11/30/2016 16:57
Selenium	ND		0.00050	1	11/30/2016 16:57
Silver	ND		0.00050	1	11/30/2016 16:57
Sodium	**29**	B	0.10	1	11/30/2016 16:57
Strontium	**0.072**		0.020	1	11/30/2016 16:57
Thallium	ND		0.00050	1	11/30/2016 16:57
Uranium	ND		0.00050	1	11/30/2016 16:57
Vanadium	**0.0014**		0.00050	1	11/30/2016 16:57
Zinc	ND		0.0050	1	11/30/2016 16:57

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**ICP-MS2**	**130211**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:22
Antimony	ND		0.00050	1	11/30/2016 17:22
Arsenic	ND		0.00050	1	11/30/2016 17:22
Barium	**0.017**		0.0050	1	11/30/2016 17:22
Beryllium	ND		0.00050	1	11/30/2016 17:22
Cadmium	ND		0.00025	1	11/30/2016 17:22
Calcium	**13**	B	0.10	1	11/30/2016 17:22
Chromium	**0.0025**		0.00050	1	11/30/2016 17:22
Cobalt	ND		0.00050	1	11/30/2016 17:22
Copper	ND		0.00050	1	11/30/2016 17:22
Iron	ND		0.020	1	11/30/2016 17:22
Lead	ND		0.00050	1	11/30/2016 17:22
Lithium	ND		0.0050	1	11/30/2016 17:22
Magnesium	**4.6**	B	0.020	1	11/30/2016 17:22
Manganese	ND		0.020	1	11/30/2016 17:22
Mercury	ND		0.000050	1	11/30/2016 17:22
Molybdenum	**0.0028**		0.00050	1	11/30/2016 17:22
Nickel	ND		0.00050	1	11/30/2016 17:22
Potassium	**1.6**	B	0.020	1	11/30/2016 17:22
Selenium	ND		0.00050	1	11/30/2016 17:22
Silver	ND		0.00050	1	11/30/2016 17:22
Sodium	**23**	B	0.10	1	11/30/2016 17:22
Strontium	**0.074**		0.020	1	11/30/2016 17:22
Thallium	ND		0.00050	1	11/30/2016 17:22
Uranium	ND		0.00050	1	11/30/2016 17:22
Vanadium	**0.0013**		0.00050	1	11/30/2016 17:22
Zinc	ND		0.0050	1	11/30/2016 17:22

Analyst(s): MIG

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**ICP-MS2**	**130300**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:28
Antimony	ND		0.00050	1	11/30/2016 17:28
Arsenic	ND		0.00050	1	11/30/2016 17:28
Barium	**0.018**		0.0050	1	11/30/2016 17:28
Beryllium	ND		0.00050	1	11/30/2016 17:28
Cadmium	ND		0.00025	1	11/30/2016 17:28
Calcium	**13**	B	0.10	1	11/30/2016 17:28
Chromium	**0.0026**		0.00050	1	11/30/2016 17:28
Cobalt	ND		0.00050	1	11/30/2016 17:28
Copper	**0.00052**		0.00050	1	11/30/2016 17:28
Iron	ND		0.020	1	11/30/2016 17:28
Lead	ND		0.00050	1	11/30/2016 17:28
Lithium	ND		0.0050	1	11/30/2016 17:28
Magnesium	**4.7**	B	0.020	1	11/30/2016 17:28
Manganese	ND		0.020	1	11/30/2016 17:28
Mercury	ND		0.000050	1	11/30/2016 17:28
Molybdenum	**0.0028**		0.00050	1	11/30/2016 17:28
Nickel	ND		0.00050	1	11/30/2016 17:28
Potassium	**1.5**	B	0.020	1	11/30/2016 17:28
Selenium	ND		0.00050	1	11/30/2016 17:28
Silver	ND		0.00050	1	11/30/2016 17:28
Sodium	**25**	B	0.10	1	11/30/2016 17:28
Strontium	**0.076**		0.020	1	11/30/2016 17:28
Thallium	ND		0.00050	1	11/30/2016 17:28
Uranium	ND		0.00050	1	11/30/2016 17:28
Vanadium	**0.0012**		0.00050	1	11/30/2016 17:28
Zinc	ND		0.0050	1	11/30/2016 17:28

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:34
Antimony	ND		0.00050	1	11/30/2016 17:34
Arsenic	**0.00059**		0.00050	1	11/30/2016 17:34
Barium	**0.015**		0.0050	1	11/30/2016 17:34
Beryllium	ND		0.00050	1	11/30/2016 17:34
Cadmium	ND		0.00025	1	11/30/2016 17:34
Calcium	**10**	B	0.10	1	11/30/2016 17:34
Chromium	**0.00094**		0.00050	1	11/30/2016 17:34
Cobalt	ND		0.00050	1	11/30/2016 17:34
Copper	ND		0.00050	1	11/30/2016 17:34
Iron	**0.032**		0.020	1	11/30/2016 17:34
Lead	ND		0.00050	1	11/30/2016 17:34
Lithium	ND		0.0050	1	11/30/2016 17:34
Magnesium	**3.9**	B	0.020	1	11/30/2016 17:34
Manganese	**0.059**		0.020	1	11/30/2016 17:34
Mercury	ND		0.000050	1	11/30/2016 17:34
Molybdenum	**0.0084**		0.00050	1	11/30/2016 17:34
Nickel	ND		0.00050	1	11/30/2016 17:34
Potassium	**2.2**	B	0.020	1	11/30/2016 17:34
Selenium	ND		0.00050	1	11/30/2016 17:34
Silver	ND		0.00050	1	11/30/2016 17:34
Sodium	**26**	B	0.10	1	11/30/2016 17:34
Strontium	**0.060**		0.020	1	11/30/2016 17:34
Thallium	ND		0.00050	1	11/30/2016 17:34
Uranium	ND		0.00050	1	11/30/2016 17:34
Vanadium	**0.0020**		0.00050	1	11/30/2016 17:34
Zinc	ND		0.0050	1	11/30/2016 17:34

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	**0.062**		0.050	1	11/30/2016 17:40
Antimony	ND		0.00050	1	11/30/2016 17:40
Arsenic	**0.00064**		0.00050	1	11/30/2016 17:40
Barium	**0.016**		0.0050	1	11/30/2016 17:40
Beryllium	ND		0.00050	1	11/30/2016 17:40
Cadmium	ND		0.00025	1	11/30/2016 17:40
Calcium	**11**	B	0.10	1	11/30/2016 17:40
Chromium	**0.00071**		0.00050	1	11/30/2016 17:40
Cobalt	ND		0.00050	1	11/30/2016 17:40
Copper	ND		0.00050	1	11/30/2016 17:40
Iron	**0.049**		0.020	1	11/30/2016 17:40
Lead	ND		0.00050	1	11/30/2016 17:40
Lithium	ND		0.0050	1	11/30/2016 17:40
Magnesium	**4.1**	B	0.020	1	11/30/2016 17:40
Manganese	**0.033**		0.020	1	11/30/2016 17:40
Mercury	ND		0.000050	1	11/30/2016 17:40
Molybdenum	**0.0096**		0.00050	1	11/30/2016 17:40
Nickel	ND		0.00050	1	11/30/2016 17:40
Potassium	**2.3**	B	0.020	1	11/30/2016 17:40
Selenium	ND		0.00050	1	11/30/2016 17:40
Silver	ND		0.00050	1	11/30/2016 17:40
Sodium	**29**	B	0.10	1	11/30/2016 17:40
Strontium	**0.063**		0.020	1	11/30/2016 17:40
Thallium	ND		0.00050	1	11/30/2016 17:40
Uranium	ND		0.00050	1	11/30/2016 17:40
Vanadium	**0.0022**		0.00050	1	11/30/2016 17:40
Zinc	ND		0.0050	1	11/30/2016 17:40

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:46
Antimony	ND		0.00050	1	11/30/2016 17:46
Arsenic	ND		0.00050	1	11/30/2016 17:46
Barium	**0.016**		0.0050	1	11/30/2016 17:46
Beryllium	ND		0.00050	1	11/30/2016 17:46
Cadmium	ND		0.00025	1	11/30/2016 17:46
Calcium	**13**	B	0.10	1	11/30/2016 17:46
Chromium	**0.0011**		0.00050	1	11/30/2016 17:46
Cobalt	ND		0.00050	1	11/30/2016 17:46
Copper	ND		0.00050	1	11/30/2016 17:46
Iron	ND		0.020	1	11/30/2016 17:46
Lead	ND		0.00050	1	11/30/2016 17:46
Lithium	ND		0.0050	1	11/30/2016 17:46
Magnesium	**4.5**	B	0.020	1	11/30/2016 17:46
Manganese	ND		0.020	1	11/30/2016 17:46
Mercury	ND		0.000050	1	12/01/2016 15:43
Molybdenum	**0.0042**		0.00050	1	11/30/2016 17:46
Nickel	ND		0.00050	1	11/30/2016 17:46
Potassium	**1.6**	B	0.020	1	11/30/2016 17:46
Selenium	ND		0.00050	1	11/30/2016 17:46
Silver	ND		0.00050	1	11/30/2016 17:46
Sodium	**24**	B	0.10	1	11/30/2016 17:46
Strontium	**0.070**		0.020	1	11/30/2016 17:46
Thallium	ND		0.00050	1	11/30/2016 17:46
Uranium	ND		0.00050	1	11/30/2016 17:46
Vanadium	**0.0010**		0.00050	1	11/30/2016 17:46
Zinc	ND		0.0050	1	11/30/2016 17:46

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:53
Antimony	ND		0.00050	1	11/30/2016 17:53
Arsenic	ND		0.00050	1	11/30/2016 17:53
Barium	**0.017**		0.0050	1	11/30/2016 17:53
Beryllium	ND		0.00050	1	11/30/2016 17:53
Cadmium	ND		0.00025	1	11/30/2016 17:53
Calcium	**13**	B	0.10	1	11/30/2016 17:53
Chromium	**0.00089**		0.00050	1	11/30/2016 17:53
Cobalt	ND		0.00050	1	11/30/2016 17:53
Copper	ND		0.00050	1	11/30/2016 17:53
Iron	ND		0.020	1	11/30/2016 17:53
Lead	ND		0.00050	1	11/30/2016 17:53
Lithium	ND		0.0050	1	11/30/2016 17:53
Magnesium	**4.5**	B	0.020	1	11/30/2016 17:53
Manganese	ND		0.020	1	11/30/2016 17:53
Mercury	ND		0.000050	1	11/30/2016 17:53
Molybdenum	**0.0051**		0.00050	1	11/30/2016 17:53
Nickel	ND		0.00050	1	11/30/2016 17:53
Potassium	**1.6**	B	0.020	1	11/30/2016 17:53
Selenium	ND		0.00050	1	11/30/2016 17:53
Silver	ND		0.00050	1	11/30/2016 17:53
Sodium	**26**	B	0.10	1	11/30/2016 17:53
Strontium	**0.071**		0.020	1	11/30/2016 17:53
Thallium	ND		0.00050	1	11/30/2016 17:53
Uranium	ND		0.00050	1	11/30/2016 17:53
Vanadium	**0.0010**		0.00050	1	11/30/2016 17:53
Zinc	ND		0.0050	1	11/30/2016 17:53

Analyst(s): MIG

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 11/22/16-11/23/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SW1312m
Analytical Method: SW6020
Unit: mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 17:59
Antimony	ND		0.00050	1	11/30/2016 17:59
Arsenic	ND		0.00050	1	11/30/2016 17:59
Barium	**0.015**		0.0050	1	11/30/2016 17:59
Beryllium	ND		0.00050	1	11/30/2016 17:59
Cadmium	ND		0.00025	1	11/30/2016 17:59
Calcium	**13**	B	0.10	1	11/30/2016 17:59
Chromium	**0.00090**		0.00050	1	11/30/2016 17:59
Cobalt	ND		0.00050	1	11/30/2016 17:59
Copper	ND		0.00050	1	11/30/2016 17:59
Iron	ND		0.020	1	11/30/2016 17:59
Lead	ND		0.00050	1	11/30/2016 17:59
Lithium	ND		0.0050	1	11/30/2016 17:59
Magnesium	**4.5**	B	0.020	1	11/30/2016 17:59
Manganese	ND		0.020	1	11/30/2016 17:59
Mercury	ND		0.000050	1	12/01/2016 15:49
Molybdenum	**0.0023**		0.00050	1	11/30/2016 17:59
Nickel	ND		0.00050	1	11/30/2016 17:59
Potassium	**1.1**	B	0.020	1	11/30/2016 17:59
Selenium	ND		0.00050	1	11/30/2016 17:59
Silver	ND		0.00050	1	11/30/2016 17:59
Sodium	**23**	B	0.10	1	11/30/2016 17:59
Strontium	**0.071**		0.020	1	11/30/2016 17:59
Thallium	ND		0.00050	1	11/30/2016 17:59
Uranium	ND		0.00050	1	11/30/2016 17:59
Vanadium	**0.0013**		0.00050	1	11/30/2016 17:59
Zinc	ND		0.0050	1	11/30/2016 17:59

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 18:05
Antimony	ND		0.00050	1	11/30/2016 18:05
Arsenic	ND		0.00050	1	11/30/2016 18:05
Barium	**0.015**		0.0050	1	11/30/2016 18:05
Beryllium	ND		0.00050	1	11/30/2016 18:05
Cadmium	ND		0.00025	1	11/30/2016 18:05
Calcium	**13**	B	0.10	1	11/30/2016 18:05
Chromium	**0.00084**		0.00050	1	11/30/2016 18:05
Cobalt	ND		0.00050	1	11/30/2016 18:05
Copper	ND		0.00050	1	11/30/2016 18:05
Iron	ND		0.020	1	11/30/2016 18:05
Lead	ND		0.00050	1	11/30/2016 18:05
Lithium	ND		0.0050	1	11/30/2016 18:05
Magnesium	**4.6**	B	0.020	1	11/30/2016 18:05
Manganese	ND		0.020	1	11/30/2016 18:05
Mercury	ND		0.000050	1	12/01/2016 15:55
Molybdenum	**0.0021**		0.00050	1	11/30/2016 18:05
Nickel	ND		0.00050	1	11/30/2016 18:05
Potassium	**1.0**	B	0.020	1	11/30/2016 18:05
Selenium	ND		0.00050	1	11/30/2016 18:05
Silver	ND		0.00050	1	11/30/2016 18:05
Sodium	**26**	B	0.10	1	11/30/2016 18:05
Strontium	**0.073**		0.020	1	11/30/2016 18:05
Thallium	ND		0.00050	1	11/30/2016 18:05
Uranium	ND		0.00050	1	11/30/2016 18:05
Vanadium	**0.0013**		0.00050	1	11/30/2016 18:05
Zinc	ND		0.0050	1	11/30/2016 18:05

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 18:11
Antimony	ND		0.00050	1	11/30/2016 18:11
Arsenic	ND		0.00050	1	11/30/2016 18:11
Barium	**0.016**		0.0050	1	11/30/2016 18:11
Beryllium	ND		0.00050	1	11/30/2016 18:11
Cadmium	ND		0.00025	1	11/30/2016 18:11
Calcium	**13**	B	0.10	1	11/30/2016 18:11
Chromium	**0.00073**		0.00050	1	11/30/2016 18:11
Cobalt	ND		0.00050	1	11/30/2016 18:11
Copper	ND		0.00050	1	11/30/2016 18:11
Iron	ND		0.020	1	11/30/2016 18:11
Lead	ND		0.00050	1	11/30/2016 18:11
Lithium	ND		0.0050	1	11/30/2016 18:11
Magnesium	**4.1**	B	0.020	1	11/30/2016 18:11
Manganese	**0.047**		0.020	1	11/30/2016 18:11
Mercury	ND		0.000050	1	12/01/2016 16:19
Molybdenum	**0.0054**		0.00050	1	11/30/2016 18:11
Nickel	ND		0.00050	1	11/30/2016 18:11
Potassium	**1.5**	B	0.020	1	11/30/2016 18:11
Selenium	ND		0.00050	1	11/30/2016 18:11
Silver	ND		0.00050	1	11/30/2016 18:11
Sodium	**24**	B	0.10	1	11/30/2016 18:11
Strontium	**0.068**		0.020	1	11/30/2016 18:11
Thallium	ND		0.00050	1	11/30/2016 18:11
Uranium	ND		0.00050	1	11/30/2016 18:11
Vanadium	**0.0011**		0.00050	1	11/30/2016 18:11
Zinc	ND		0.0050	1	11/30/2016 18:11

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 18:17
Antimony	ND		0.00050	1	11/30/2016 18:17
Arsenic	ND		0.00050	1	11/30/2016 18:17
Barium	**0.016**		0.0050	1	11/30/2016 18:17
Beryllium	ND		0.00050	1	11/30/2016 18:17
Cadmium	ND		0.00025	1	11/30/2016 18:17
Calcium	**13**	B	0.10	1	11/30/2016 18:17
Chromium	**0.00057**		0.00050	1	11/30/2016 18:17
Cobalt	ND		0.00050	1	11/30/2016 18:17
Copper	ND		0.00050	1	11/30/2016 18:17
Iron	ND		0.020	1	11/30/2016 18:17
Lead	ND		0.00050	1	11/30/2016 18:17
Lithium	ND		0.0050	1	11/30/2016 18:17
Magnesium	**4.3**	B	0.020	1	11/30/2016 18:17
Manganese	**0.048**		0.020	1	11/30/2016 18:17
Mercury	ND		0.000050	1	11/30/2016 18:17
Molybdenum	**0.0071**		0.00050	1	11/30/2016 18:17
Nickel	ND		0.00050	1	11/30/2016 18:17
Potassium	**1.5**	B	0.020	1	11/30/2016 18:17
Selenium	ND		0.00050	1	11/30/2016 18:17
Silver	ND		0.00050	1	11/30/2016 18:17
Sodium	**27**	B	0.10	1	11/30/2016 18:17
Strontium	**0.070**		0.020	1	11/30/2016 18:17
Thallium	ND		0.00050	1	11/30/2016 18:17
Uranium	ND		0.00050	1	11/30/2016 18:17
Vanadium	**0.0013**		0.00050	1	11/30/2016 18:17
Zinc	ND		0.0050	1	11/30/2016 18:17

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 18:42
Antimony	ND		0.00050	1	11/30/2016 18:42
Arsenic	**0.00066**		0.00050	1	11/30/2016 18:42
Barium	**0.0099**		0.0050	1	11/30/2016 18:42
Beryllium	ND		0.00050	1	11/30/2016 18:42
Cadmium	ND		0.00025	1	11/30/2016 18:42
Calcium	**11**	B	0.10	1	11/30/2016 18:42
Chromium	**0.00052**		0.00050	1	11/30/2016 18:42
Cobalt	ND		0.00050	1	11/30/2016 18:42
Copper	ND		0.00050	1	11/30/2016 18:42
Iron	**0.021**		0.020	1	11/30/2016 18:42
Lead	ND		0.00050	1	11/30/2016 18:42
Lithium	ND		0.0050	1	11/30/2016 18:42
Magnesium	**3.7**	B	0.020	1	11/30/2016 18:42
Manganese	**0.044**		0.020	1	11/30/2016 18:42
Mercury	ND		0.000050	1	11/30/2016 18:42
Molybdenum	**0.016**		0.00050	1	11/30/2016 18:42
Nickel	ND		0.00050	1	11/30/2016 18:42
Potassium	**1.8**	B	0.020	1	11/30/2016 18:42
Selenium	ND		0.00050	1	11/30/2016 18:42
Silver	ND		0.00050	1	11/30/2016 18:42
Sodium	**25**	B	0.10	1	11/30/2016 18:42
Strontium	**0.057**		0.020	1	11/30/2016 18:42
Thallium	ND		0.00050	1	11/30/2016 18:42
Uranium	ND		0.00050	1	11/30/2016 18:42
Vanadium	**0.0041**		0.00050	1	11/30/2016 18:42
Zinc	ND		0.0050	1	11/30/2016 18:42

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 18:48
Antimony	ND		0.00050	1	11/30/2016 18:48
Arsenic	**0.00074**		0.00050	1	11/30/2016 18:48
Barium	**0.010**		0.0050	1	11/30/2016 18:48
Beryllium	ND		0.00050	1	11/30/2016 18:48
Cadmium	ND		0.00025	1	11/30/2016 18:48
Calcium	**11**	B	0.10	1	11/30/2016 18:48
Chromium	**0.00051**		0.00050	1	11/30/2016 18:48
Cobalt	ND		0.00050	1	11/30/2016 18:48
Copper	ND		0.00050	1	11/30/2016 18:48
Iron	**0.022**		0.020	1	11/30/2016 18:48
Lead	ND		0.00050	1	11/30/2016 18:48
Lithium	ND		0.0050	1	11/30/2016 18:48
Magnesium	**3.7**	B	0.020	1	11/30/2016 18:48
Manganese	**0.040**		0.020	1	11/30/2016 18:48
Mercury	ND		0.000050	1	11/30/2016 18:48
Molybdenum	**0.019**		0.00050	1	11/30/2016 18:48
Nickel	ND		0.00050	1	11/30/2016 18:48
Potassium	**1.9**	B	0.020	1	11/30/2016 18:48
Selenium	ND		0.00050	1	11/30/2016 18:48
Silver	ND		0.00050	1	11/30/2016 18:48
Sodium	**30**	B	0.10	1	11/30/2016 18:48
Strontium	**0.057**		0.020	1	11/30/2016 18:48
Thallium	ND		0.00050	1	11/30/2016 18:48
Uranium	ND		0.00050	1	11/30/2016 18:48
Vanadium	**0.0044**		0.00050	1	11/30/2016 18:48
Zinc	ND		0.0050	1	11/30/2016 18:48

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**ICP-MS2**	**130212**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	**0.063**		0.050	1	11/30/2016 18:54
Antimony	ND		0.00050	1	11/30/2016 18:54
Arsenic	**0.00062**		0.00050	1	11/30/2016 18:54
Barium	**0.037**		0.0050	1	11/30/2016 18:54
Beryllium	ND		0.00050	1	11/30/2016 18:54
Cadmium	ND		0.00025	1	11/30/2016 18:54
Calcium	**11**	B	0.10	1	11/30/2016 18:54
Chromium	**0.00061**		0.00050	1	11/30/2016 18:54
Cobalt	ND		0.00050	1	11/30/2016 18:54
Copper	ND		0.00050	1	11/30/2016 18:54
Iron	**0.031**		0.020	1	11/30/2016 18:54
Lead	ND		0.00050	1	11/30/2016 18:54
Lithium	ND		0.0050	1	11/30/2016 18:54
Magnesium	**3.7**	B	0.020	1	11/30/2016 18:54
Manganese	**0.022**		0.020	1	11/30/2016 18:54
Mercury	ND		0.000050	1	11/30/2016 18:54
Molybdenum	**0.015**		0.00050	1	11/30/2016 18:54
Nickel	ND		0.00050	1	11/30/2016 18:54
Potassium	**1.5**	B	0.020	1	11/30/2016 18:54
Selenium	ND		0.00050	1	11/30/2016 18:54
Silver	ND		0.00050	1	11/30/2016 18:54
Sodium	**27**	B	0.10	1	11/30/2016 18:54
Strontium	**0.059**		0.020	1	11/30/2016 18:54
Thallium	ND		0.00050	1	11/30/2016 18:54
Uranium	ND		0.00050	1	11/30/2016 18:54
Vanadium	**0.0041**		0.00050	1	11/30/2016 18:54
Zinc	**0.013**		0.0050	1	11/30/2016 18:54

Analyst(s): MIG

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6020
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**ICP-MS2**	**130301**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	ND		0.050	1	11/30/2016 19:00
Antimony	ND		0.00050	1	11/30/2016 19:00
Arsenic	**0.00062**		0.00050	1	11/30/2016 19:00
Barium	**0.012**		0.0050	1	11/30/2016 19:00
Beryllium	ND		0.00050	1	11/30/2016 19:00
Cadmium	ND		0.00025	1	11/30/2016 19:00
Calcium	**11**	B	0.10	1	11/30/2016 19:00
Chromium	**0.00071**		0.00050	1	11/30/2016 19:00
Cobalt	ND		0.00050	1	11/30/2016 19:00
Copper	ND		0.00050	1	11/30/2016 19:00
Iron	ND		0.020	1	11/30/2016 19:00
Lead	ND		0.00050	1	11/30/2016 19:00
Lithium	ND		0.0050	1	11/30/2016 19:00
Magnesium	**3.8**	B	0.020	1	11/30/2016 19:00
Manganese	**0.022**		0.020	1	11/30/2016 19:00
Mercury	ND		0.000050	1	12/01/2016 15:36
Molybdenum	**0.012**		0.00050	1	11/30/2016 19:00
Nickel	ND		0.00050	1	11/30/2016 19:00
Potassium	**1.5**	B	0.020	1	11/30/2016 19:00
Selenium	ND		0.00050	1	11/30/2016 19:00
Silver	ND		0.00050	1	11/30/2016 19:00
Sodium	**29**	B	0.10	1	11/30/2016 19:00
Strontium	**0.061**		0.020	1	11/30/2016 19:00
Thallium	ND		0.00050	1	11/30/2016 19:00
Uranium	ND		0.00050	1	11/30/2016 19:00
Vanadium	**0.0044**		0.00050	1	11/30/2016 19:00
Zinc	ND		0.0050	1	11/30/2016 19:00

Analyst(s): MIG

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**288 @ 22.2°C**	±10	1	11/23/2016 17:33

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**283 @ 22.0°C**	±10	1	11/23/2016 17:36

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**290 @ 21.8°C**	±10	1	11/23/2016 17:39

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**285 @ 21.7°C**	±10	1	11/23/2016 17:42

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**292 @ 21.8°C**	±10	1	11/23/2016 17:45

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130323**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**288 @ 22.0°C**	±10	1	11/23/2016 17:48

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**287 @ 22.0°C**	±10	1	11/23/2016 17:51

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**290 @ 21.8°C**	±10	1	11/23/2016 17:57

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**297 @ 21.8°C**	±10	1	11/23/2016 18:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**294 @ 21.9°C**	±10	1	11/23/2016 18:03

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**298 @ 22.0°C**	±10	1	11/23/2016 18:06

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**294 @ 22.2°C**	±10	1	11/23/2016 18:09

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**289 @ 22.1°C**	±10	1	11/23/2016 18:12

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**288 @ 22.0°C**	±10	1	11/23/2016 18:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**291 @ 21.9°C**	±10	1	11/23/2016 18:18

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130324**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**291 @ 22.0°C**	±10	1	11/23/2016 18:21

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2580B-97
Date Prepared:	11/23/16	**Analytical Method:**	SM2580B-97
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130325**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**285 @ 22.0°C**	±10	1	11/23/2016 18:24

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130325**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**278 @ 22.1°C**	±10	1	11/23/2016 18:30

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.85**		±0.05	1	11/21/2016 16:05

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.95**		±0.05	1	11/21/2016 16:08

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.85**		±0.05	1	11/21/2016 16:11

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.95**		±0.05	1	11/21/2016 16:14

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.83**		±0.05	1	11/21/2016 16:17

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WetChem**	**130144**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.91**		±0.05	1	11/21/2016 16:20

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.96**		±0.05	1	11/21/2016 16:23

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.94**		±0.05	1	11/21/2016 16:29

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.79**		±0.05	1	11/21/2016 16:32

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.89**		±0.05	1	11/21/2016 16:35

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.80**		±0.05	1	11/21/2016 16:38

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.88**		±0.05	1	11/21/2016 16:41

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.97**		±0.05	1	11/21/2016 16:44

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**8.06**		±0.05	1	11/21/2016 16:47

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.90**		±0.05	1	11/21/2016 16:50

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130146**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.95**		±0.05	1	11/21/2016 16:53

Analyst(s): AL

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW9040
Date Prepared:	11/21/16	**Analytical Method:**	SW9040
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130149**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**7.93**		±0.05	1	11/21/2016 16:56

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130149**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
pH	**8.07**		±0.05	1	11/21/2016 17:02

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:13

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:16

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:18

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/29/2016 17:21

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**ICP-JY**	**130206**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:35

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**ICP-JY**	**130296**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:38

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:40

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:43

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:45

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:48

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:51

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:53

Analyst(s): BBO

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:56

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 11:59

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 12:07

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	50	1	11/30/2016 12:09

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Phosphorus (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**ICP-JY**	**130208**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 12:12

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**ICP-JY**	**130297**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	0.050	1	11/30/2016 12:15

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	1609E06-001C	Soil	09/29/2016 13:30	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**219**		10.0	1	11/02/2016 18:25
Total Dissolved Solids (mg/L)	**107**		4.80	1	11/02/2016 18:25

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	1609E06-001D	Soil	09/29/2016 13:30	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**229**		10.0	1	11/02/2016 18:30
Total Dissolved Solids (mg/L)	**112**		4.80	1	11/02/2016 18:30

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	1609E06-002C	Soil	09/29/2016 14:00	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**215**		10.0	1	11/02/2016 18:35
Total Dissolved Solids (mg/L)	**105**		4.80	1	11/02/2016 18:35

Analyst(s): GM

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 11/2/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SM2510 B-1997
Analytical Method: SM2510 B-1997
Unit: µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	1609E06-002D	Soil	09/29/2016 14:00	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**227**		10.0	1	11/02/2016 18:40
Total Dissolved Solids (mg/L)	**111**		4.80	1	11/02/2016 18:40

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	1609E06-003C	Soil	09/29/2016 14:45	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**225**		10.0	1	11/02/2016 18:45
Total Dissolved Solids (mg/L)	**110**		4.80	1	11/02/2016 18:45

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	1609E06-003D	Soil	09/29/2016 14:45	WetChem	130486

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**236**		10.0	1	11/02/2016 18:50
Total Dissolved Solids (mg/L)	**115**		4.80	1	11/02/2016 18:50

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**220**		10.0	1	11/02/2016 18:55
Total Dissolved Solids (mg/L)	**108**		4.80	1	11/02/2016 18:55

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**231**		10.0	1	11/02/2016 19:05
Total Dissolved Solids (mg/L)	**113**		4.80	1	11/02/2016 19:05

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**216**		10.0	1	11/02/2016 19:10
Total Dissolved Solids (mg/L)	**106**		4.80	1	11/02/2016 19:10

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**224**		10.0	1	11/02/2016 19:15
Total Dissolved Solids (mg/L)	**110**		4.80	1	11/02/2016 19:15

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**218**		10.0	1	11/02/2016 19:20
Total Dissolved Solids (mg/L)	**107**		4.80	1	11/02/2016 19:20

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**228**		10.0	1	11/02/2016 19:25
Total Dissolved Solids (mg/L)	**112**		4.80	1	11/02/2016 19:25

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**219**		10.0	1	11/02/2016 19:30
Total Dissolved Solids (mg/L)	**107**		4.80	1	11/02/2016 19:30

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**233**		10.0	1	11/02/2016 19:35
Total Dissolved Solids (mg/L)	**114**		4.80	1	11/02/2016 19:35

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**217**		10.0	1	11/02/2016 19:40
Total Dissolved Solids (mg/L)	**106**		4.80	1	11/02/2016 19:40

Analyst(s): GM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510 B-1997
Date Prepared:	11/2/16	**Analytical Method:**	SM2510 B-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C [Leachate]

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**230**		10.0	1	11/02/2016 19:45
Total Dissolved Solids (mg/L)	**113**		4.80	1	11/02/2016 19:45

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130488**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**221**		10.0	1	11/02/2016 19:50
Total Dissolved Solids (mg/L)	**108**		4.80	1	11/02/2016 19:50

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130488**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Specific Conductivity	**232**		10.0	1	11/02/2016 20:00
Total Dissolved Solids (mg/L)	**113**		4.80	1	11/02/2016 20:00

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 09 ft	**1609E06-001A**	**Soil**	**09/29/2016 13:30**	**WetChem**	**127525**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**73.7**	25.0	1	10/03/2016 20:22

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 25 ft	**1609E06-002A**	**Soil**	**09/29/2016 14:00**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**55.0**	25.0	1	10/03/2016 20:25

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50 ft	**1609E06-003A**	**Soil**	**09/29/2016 14:45**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**69.6**	25.0	1	10/03/2016 20:31

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65 ft	**1609E06-004A**	**Soil**	**09/29/2016 15:15**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**58.4**	25.0	1	10/03/2016 20:34

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80 ft	**1609E06-005A**	**Soil**	**09/29/2016 16:00**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**78.6**	25.0	1	10/03/2016 20:37

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100 ft	**1609E06-006A**	**Soil**	**09/29/2016 17:00**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**86.0**	25.0	1	10/03/2016 20:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125 ft	**1609E06-007A**	**Soil**	**09/30/2016 09:00**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**80.5**	25.0	1	10/03/2016 20:43

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 140 ft	**1609E06-008A**	**Soil**	**09/30/2016 09:40**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**54.0**	25.0	1	10/03/2016 20:46

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2510Bm-1997
Date Prepared:	10/3/16	**Analytical Method:**	SM2510Bm-1997
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 160 ft	**1609E06-009A**	**Soil**	**09/30/2016 11:00**	**WetChem**	**127526**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**67.4**	25.0	1	10/03/2016 20:49

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 09 ft HH	**1609E06-001B**	**Soil**	**09/29/2016 13:30**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3300**	15	1	11/01/2016 20:39

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 25 ft HH	**1609E06-002B**	**Soil**	**09/29/2016 14:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3000**	15	1	11/01/2016 20:43

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 50 ft HH	**1609E06-003B**	**Soil**	**09/29/2016 14:45**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3000**	150	10	11/01/2016 18:54

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 65 ft HH	**1609E06-004B**	**Soil**	**09/29/2016 15:15**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3400**	15	1	11/01/2016 20:51

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 80 ft HH	**1609E06-005B**	**Soil**	**09/29/2016 16:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**2900**	15	1	11/01/2016 20:54

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 100 ft HH	**1609E06-006B**	**Soil**	**09/29/2016 17:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3200**	15	1	11/01/2016 21:06

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 125 ft HH	**1609E06-007B**	**Soil**	**09/30/2016 09:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3700**	15	1	11/01/2016 21:09

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 140 ft HH	**1609E06-008B**	**Soil**	**09/30/2016 09:40**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3300**	15	1	11/01/2016 21:13

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	TM-7
Date Prepared:	10/21/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/kg

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Sonic-5 @ 160 ft HH	**1609E06-009B**	**Soil**	**09/30/2016 11:00**	**ICP-JY**	**128927**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**3500**	15	1	11/01/2016 21:17

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.2**	B	0.050	1	12/01/2016 13:19

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.8**	B	0.050	1	11/30/2016 19:58

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.5**	B	0.050	1	11/30/2016 20:02

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.0**	B	0.050	1	11/30/2016 20:06

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**ICP-JY**	**130209**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.7**	B	0.050	1	11/30/2016 20:17

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**ICP-JY**	**130298**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.6**	B	0.050	1	11/30/2016 20:21

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.1**	B	0.050	1	11/30/2016 20:25

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.5**	B	0.050	1	11/30/2016 20:28

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.7**	B	0.050	1	11/30/2016 20:32

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.8**	B	0.050	1	11/30/2016 20:36

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**6.0**	B	0.050	1	12/01/2016 13:22

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.5**	B	0.050	1	11/30/2016 20:43

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**4.6**	B	0.050	1	11/30/2016 20:47

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**5.0**	B	0.050	1	12/01/2016 13:26

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.1**	B	0.050	1	11/30/2016 21:02

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.5**	B	0.050	1	11/30/2016 21:06

Analyst(s): BBO

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SW1312m
Date Prepared:	11/22/16-11/23/16	**Analytical Method:**	SW6010B
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Silicon (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**ICP-JY**	**130210**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.4**	B	0.050	1	12/01/2016 13:37

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**ICP-JY**	**130299**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Silicon	**7.6**	B	0.050	1	11/30/2016 21:14

Analyst(s): BBO

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16-12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:38

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:41

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:44

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:47

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16-12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**SPECTROPHOTOMETER**	**130711**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 21:53

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/06/2016 15:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:08

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16-12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:11

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:14

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:17

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:20

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16-12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:23

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:26

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:29

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**SPECTROPHOTOMETER**	**130712**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:32

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/2/16-12/6/16	**Analytical Method:**	SM4500 S-2 D
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Leachate Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**SPECTROPHOTOMETER**	**130713**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND		0.050	1	12/02/2016 22:38

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:42

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 12:42

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:45

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 12:46

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:48

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 12:50

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:51

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 12:54

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:54

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	**1.4**		0.30	1	11/23/2016 17:47

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 12:57

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WC_SKALAR**	**130201**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 13:02

Analyst(s): BM

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 13:00

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:55

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 13:03

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 17:59

Analyst(s): BM

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E351.2
Date Prepared:	11/21/16-11/22/16	**Analytical Method:**	E351.2
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Total Kjeldahl Nitrogen (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WC_SKALAR**	**130130**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/22/2016 13:24

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WC_SKALAR**	**130203**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
TKN as N	ND		0.30	1	11/23/2016 18:03

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	1609E06-001C	Soil	09/29/2016 13:30	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.348**		0.100	1	11/23/2016 19:05

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	1609E06-001D	Soil	09/29/2016 13:30	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.229**		0.100	1	11/23/2016 19:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	1609E06-002C	Soil	09/29/2016 14:00	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.409**		0.100	1	11/23/2016 19:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	1609E06-002D	Soil	09/29/2016 14:00	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.348**		0.100	1	11/23/2016 19:20

Analyst(s): RB

(Cont.)

Analytical Report

Client: Todd Groundwater
Date Received: 9/30/16 18:30
Date Prepared: 11/23/16
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	1609E06-003C	Soil	09/29/2016 14:45	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.482**		0.100	1	11/23/2016 19:25

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	1609E06-003D	Soil	09/29/2016 14:45	WetChem	130330

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.339**		0.100	1	11/23/2016 19:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	1609E06-004C	Soil	09/29/2016 15:15	WetChem	130331

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.289**		0.100	1	11/23/2016 19:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	1609E06-004D	Soil	09/29/2016 15:15	WetChem	130331

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.369**		0.100	1	11/23/2016 19:45

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.248**		0.100	1	11/23/2016 19:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.371**		0.100	1	11/23/2016 19:55

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.362**		0.100	1	11/23/2016 20:00

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.455**		0.100	1	11/23/2016 20:05

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.289**		0.100	1	11/23/2016 20:10

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.216**		0.100	1	11/23/2016 20:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.348**		0.100	1	11/23/2016 20:20

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WetChem**	**130331**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.316**		0.100	1	11/23/2016 20:25

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	SM2130 B-2001
Date Prepared:	11/23/16	**Analytical Method:**	SM2130 B-2001
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WetChem**	**130332**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Turbidity	**0.296**		0.100	1	11/23/2016 20:30

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	1609E06-001C	Soil	09/29/2016 13:30	WC_CNS	130134

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 02:06

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	1609E06-001D	Soil	09/29/2016 13:30	WC_CNS	130136

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 07:54

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	1609E06-002C	Soil	09/29/2016 14:00	WC_CNS	130134

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 02:18

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	1609E06-002D	Soil	09/29/2016 14:00	WC_CNS	130136

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 08:07

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 02:30

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 10:43

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 02:43

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 10:57

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 03:17

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 11:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 03:31

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 11:27

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	**1609E06-007C**	**Soil**	**09/30/2016 09:00**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 03:43

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	**1609E06-007D**	**Soil**	**09/30/2016 09:00**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 12:01

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	**1609E06-008C**	**Soil**	**09/30/2016 09:40**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 03:55

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	**1609E06-008D**	**Soil**	**09/30/2016 09:40**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 12:15

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/21/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Dissolved Organic Carbon (DOC) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WC_CNS**	**130134**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 04:20

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WC_CNS**	**130136**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	11/22/2016 12:30

Analyst(s): BAS

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 1	**1609E06-001C**	**Soil**	**09/29/2016 13:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 17:49

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 09 ft Chem Dose 2	**1609E06-001D**	**Soil**	**09/29/2016 13:30**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 11:32

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 1	**1609E06-002C**	**Soil**	**09/29/2016 14:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 17:57

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 25 ft Chem Dose 2	**1609E06-002D**	**Soil**	**09/29/2016 14:00**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**36**	2.6	1	11/23/2016 11:40

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 1	**1609E06-003C**	**Soil**	**09/29/2016 14:45**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 18:04

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 50 ft Chem Dose 2	**1609E06-003D**	**Soil**	**09/29/2016 14:45**	**WC_CNS**	**130279**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 11:48

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 1	**1609E06-004C**	**Soil**	**09/29/2016 15:15**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**30**	2.6	1	11/23/2016 18:12

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 65 ft Dose 2	**1609E06-004D**	**Soil**	**09/29/2016 15:15**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**37**	2.6	1	11/23/2016 11:56

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 1	**1609E06-005C**	**Soil**	**09/29/2016 16:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	11/23/2016 18:26

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 80 ft Chem Dose 2	**1609E06-005D**	**Soil**	**09/29/2016 16:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 12:10

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 1	**1609E06-006C**	**Soil**	**09/29/2016 17:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**27**	2.6	1	11/23/2016 18:33

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 100 ft Chem Dose 2	**1609E06-006D**	**Soil**	**09/29/2016 17:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**34**	2.6	1	11/23/2016 12:17

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 1	1609E06-007C	Soil	09/30/2016 09:00	WC_CNS	130280

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 18:41

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 125 ft Chem Dose 2	1609E06-007D	Soil	09/30/2016 09:00	WC_CNS	130280

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**36**	2.6	1	11/23/2016 12:25

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 1	1609E06-008C	Soil	09/30/2016 09:40	WC_CNS	130280

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**28**	2.6	1	11/23/2016 19:18

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 140 ft Chem Dose 2	1609E06-008D	Soil	09/30/2016 09:40	WC_CNS	130280

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**35**	2.6	1	11/23/2016 12:55

Analyst(s): BAS

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Received:	9/30/16 18:30	**Extraction Method:**	E415.3
Date Prepared:	11/23/16	**Analytical Method:**	E415.3
Project:	SCVWO-1PR; McGlincey Ponds	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 1	**1609E06-009C**	**Soil**	**09/30/2016 11:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**29**	2.6	1	11/23/2016 19:25

Analyst(s): BAS

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
S-5 160 ft Chem Dose 2	**1609E06-009D**	**Soil**	**09/30/2016 11:00**	**WC_CNS**	**130280**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**36**	2.6	1	11/23/2016 13:03

Analyst(s): BAS

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	12/1/16	**BatchID:**	130601
Date Analyzed:	11/26/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130601

QC Summary Report for E218.6 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0252	0.00020	0.025	-	101	90-110

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	12/1/16	**BatchID:**	130602
Date Analyzed:	11/26/16 - 12/2/16	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130602

QC Summary Report for E218.6 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	0.0247	0.00020	0.025	-	99	90-110

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	9/30/16	**BatchID:**	127446
Date Analyzed:	10/1/16	**Extraction Method:**	E300.0
Instrument:	IC3	**Analytical Method:**	E300.0
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127446

QC Summary Report for E300.0

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	96.6	10	100	-	97	80-120
Nitrate as $NO3^-$	ND	428	45	440	-	97	80-120
Surrogate Recovery							
Formate	9.66	9.64		10	97	96	80-120

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16 - 12/1/16	**BatchID:**	130575
Date Analyzed:	11/22/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130575

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.973	0.10	1	-	97	85-115
Chloride	ND	0.984	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.988	0.10	1	-	99	85-115
Nitrate as NO_3^-	ND	4.37	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.00	0.10	1	-	100	85-115
Nitrite as NO_2^-	ND	3.29	0.33	3.3	-	100	85-115
Sulfate	ND	0.985	0.10	1	-	99	85-115
Surrogate Recovery							
Formate	0.107	0.104		0.10	107	104	85-115

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16 - 12/1/16	**BatchID:**	130576
Date Analyzed:	11/23/16 - 12/1/16	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130576

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	0.974	0.10	1	-	97	85-115
Chloride	ND	0.982	0.10	1	-	98	85-115
Fluoride	ND	1.02	0.10	1	-	102	85-115
Nitrate as N	ND	0.985	0.10	1	-	99	85-115
Nitrate as $NO3^-$	ND	4.36	0.45	4.4	-	99	85-115
Nitrite as N	ND	1.00	0.10	1	-	100	85-115
Nitrite as $NO2^-$	ND	3.29	0.33	3.3	-	100	85-115
Sulfate	ND	0.977	0.10	1	-	98	85-115
Surrogate Recovery							
Formate	0.108	0.104		0.10	108	104	85-115

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/26/16 - 11/27/16	**BatchID:**	130544
Date Analyzed:	11/26/16 - 11/27/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130544 1611848-001NMS/MSD

QC Summary Report E314.0 (Perchlorate, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	10.3	4.0	10	-	103	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	9.12	10.2	10	ND	91	102	80-120	11.4	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/26/16 - 11/27/16	**BatchID:**	130545
Date Analyzed:	11/26/16 - 11/27/16	**Extraction Method:**	E314.0
Instrument:	IC1	**Analytical Method:**	E314.0
Matrix:	Water	**Unit:**	µg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130545 1611847-001NMS/MSD

QC Summary Report E314.0 (Perchlorate, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	8.65	4.0	10	-	86	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Perchlorate	9.82	9.82	10	ND	98	98	80-120	0	20

CDPH ELAP 1644

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/5/16	**BatchID:**	127623
Date Analyzed:	10/3/16 - 10/5/16	**Extraction Method:**	E314.0 modified
Instrument:	IC1	**Analytical Method:**	E314.0m
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127623

QC Summary Report for E314.0m (Perchlorate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Perchlorate	ND	1.10	0.40	1	-	110	80-120

CDPH ELAP 1644

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	9/30/16	**BatchID:**	127419
Date Analyzed:	9/30/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127419 1609D63-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0433	0.0050	0.050	-	87	53-116
Benzene	ND	0.0456	0.0050	0.050	-	91	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.174	0.050	0.20	-	87	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0477	0.0050	0.050	-	95	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0478	0.0040	0.050	-	96	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0454	0.0040	0.050	-	91	58-135
1,1-Dichloroethene	ND	0.0379	0.0050	0.050	-	76	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	9/30/16	**BatchID:**	127419
Date Analyzed:	9/30/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127419 1609D63-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0434	0.0050	0.050	-	87	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0438	0.0050	0.050	-	88	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0433	0.0050	0.050	-	87	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0506	0.0050	0.050	-	101	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0450	0.0050	0.050	-	90	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	9/30/16	**BatchID:**	127419
Date Analyzed:	9/30/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127419 1609D63-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.124	0.126		0.12	99	101	70-130
Toluene-d8	0.134	0.136		0.12	107	108	70-130
4-BFB	0.0133	0.0135		0.012	106	108	70-130
Benzene-d6	0.0978	0.101		0.10	98	101	60-140
Ethylbenzene-d10	0.123	0.126		0.10	123	126	60-140
1,2-DCB-d4	0.0898	0.0901		0.10	90	90	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0206	0.0250	0.050	ND	41,F1	50,F1	70-130	19.5	20
Benzene	0.0227	0.0253	0.050	ND	45,F1	51,F1	70-130	10.6	20
t-Butyl alcohol (TBA)	0.0791	0.108	0.20	ND	40,F1	54,F1	70-130	30.7,F1	20
Chlorobenzene	0.0215	0.0259	0.050	ND	43,F1	52,F1	70-130	18.8	20
1,2-Dibromoethane (EDB)	0.0204	0.0237	0.050	ND	41,F1	47,F1	70-130	15.1	20
1,2-Dichloroethane (1,2-DCA)	0.0219	0.0253	0.050	ND	44,F1	51,F1	70-130	14.3	20
1,1-Dichloroethene	0.0194	0.0199	0.050	ND	39,F1	40,F1	70-130	2.27	20
Diisopropyl ether (DIPE)	0.0228	0.0278	0.050	ND	46,F1	56,F1	70-130	19.6	20
Ethyl tert-butyl ether (ETBE)	0.0220	0.0270	0.050	ND	44,F1	54,F1	70-130	20.1,F1	20
Methyl-t-butyl ether (MTBE)	0.0208	0.0256	0.050	ND	42,F1	51,F1	70-130	20.4,F1	20
Toluene	0.0221	0.0252	0.050	ND	44,F1	50,F1	70-130	12.7	20
Trichloroethene	0.0216	0.0228	0.050	ND	43,F1	46,F1	70-130	5.56	20
Surrogate Recovery									
Dibromofluoromethane	0.114	0.112	0.12		91	89	70-130	2.06	20
Toluene-d8	0.130	0.135	0.12		104	108	70-130	3.48	20
4-BFB	0.0114	0.0117	0.012		91	94	70-130	2.23	20
Benzene-d6	0.0471	0.0531	0.10		47,F3	53,F3	60-140	12.0	20
Ethylbenzene-d10	0.0523	0.0614	0.10		52,F3	61	60-140	16.0	20
1,2-DCB-d4	0.0469	0.0598	0.10		47,F3	60	60-140	24.3,F1	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	4.79	0.25	5	-	96	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	5.37	0.25	5	-	107	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	5.33	0.25	5	-	107	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	4.33	0.25	5	-	87	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	5.21	0.25	5	-	104	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	4.34	1.3	5	-	87	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	4.95	0.25	5	-	99	47-108
Pentachlorophenol	ND	5.48	1.3	5	-	110	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	4.82	0.25	5	-	96	49-107
Pyrene	ND	5.45	0.25	5	-	109	55-124
1,2,4-Trichlorobenzene	ND	5.06	0.25	5	-	101	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/3/16	**BatchID:**	127523
Date Analyzed:	10/3/16 - 10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC17	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127523 1610032-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.36	5.47		5	107	109	47-125
Phenol-d5	4.77	4.98		5	95	100	45-117
Nitrobenzene-d5	4.67	5.05		5	93	101	39-121
2-Fluorobiphenyl	4.16	4.58		5	83	92	35-120
2,4,6-Tribromophenol	3.90	4.26		5	78	85	32-111
4-Terphenyl-d14	4.22	4.49		5	84	90	32-128

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<10	NR	NR	-	NR	
4-Chloro-3-methylphenol	NR	NR		ND<10	NR	NR	-	NR	
2-Chlorophenol	NR	NR		ND<10	NR	NR	-	NR	
1,4-Dichlorobenzene	NR	NR		ND<10	NR	NR	-	NR	
2,4-Dinitrotoluene	NR	NR		ND<10	NR	NR	-	NR	
4-Nitrophenol	NR	NR		ND<52	NR	NR	-	NR	
N-Nitrosodi-n-propylamine	NR	NR		ND<10	NR	NR	-	NR	
Pentachlorophenol	NR	NR		ND<52	NR	NR	-	NR	
Phenol	NR	NR		ND<10	NR	NR	-	NR	
Pyrene	NR	NR		ND<10	NR	NR	-	NR	
1,2,4-Trichlorobenzene	NR	NR		ND<10	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	
Phenol-d5	NR	NR			NR	NR	-	NR	
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/4/16	**BatchID:**	127558
Date Analyzed:	10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127558 1610035-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	3.91	0.25	5	-	78	46-118
Acenaphthylene	ND	-	0.25	-	-	-	-
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	-	0.25	-	-	-	-
Benzidine	ND	-	1.3	-	-	-	-
Benzo (a) anthracene	ND	-	0.25	-	-	-	-
Benzo (a) pyrene	ND	-	0.25	-	-	-	-
Benzo (b) fluoranthene	ND	-	0.25	-	-	-	-
Benzo (g,h,i) perylene	ND	-	0.25	-	-	-	-
Benzo (k) fluoranthene	ND	-	0.25	-	-	-	-
Benzyl Alcohol	ND	-	1.3	-	-	-	-
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	-	0.25	-	-	-	-
Bis (2-chloroethyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-chloroisopropyl) Ether	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Adipate	ND	-	0.25	-	-	-	-
Bis (2-ethylhexyl) Phthalate	ND	-	0.25	-	-	-	-
4-Bromophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Butylbenzyl Phthalate	ND	-	0.25	-	-	-	-
4-Chloroaniline	ND	-	0.50	-	-	-	-
4-Chloro-3-methylphenol	ND	3.73	0.25	5	-	75	49-123
2-Chloronaphthalene	ND	-	0.25	-	-	-	-
2-Chlorophenol	ND	4.09	0.25	5	-	82	55-116
4-Chlorophenyl Phenyl Ether	ND	-	0.25	-	-	-	-
Chrysene	ND	-	0.25	-	-	-	-
Dibenzo (a,h) anthracene	ND	-	0.25	-	-	-	-
Dibenzofuran	ND	-	0.25	-	-	-	-
Di-n-butyl Phthalate	ND	-	0.25	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.25	-	-	-	-
1,4-Dichlorobenzene	ND	3.58	0.25	5	-	72	50-102
3,3-Dichlorobenzidine	ND	-	0.50	-	-	-	-
2,4-Dichlorophenol	ND	-	0.25	-	-	-	-
Diethyl Phthalate	ND	-	0.25	-	-	-	-
2,4-Dimethylphenol	ND	-	0.25	-	-	-	-
Dimethyl Phthalate	ND	-	0.25	-	-	-	-
4,6-Dinitro-2-methylphenol	ND	-	1.3	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/4/16	**BatchID:**	127558
Date Analyzed:	10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127558 1610035-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	-	6.3	-	-	-	-
2,4-Dinitrotoluene	ND	4.25	0.25	5	-	85	47-117
2,6-Dinitrotoluene	ND	-	0.25	-	-	-	-
Di-n-octyl Phthalate	ND	-	0.50	-	-	-	-
1,2-Diphenylhydrazine	ND	-	0.25	-	-	-	-
Fluoranthene	ND	-	0.25	-	-	-	-
Fluorene	ND	-	0.25	-	-	-	-
Hexachlorobenzene	ND	-	0.25	-	-	-	-
Hexachlorobutadiene	ND	-	0.25	-	-	-	-
Hexachlorocyclopentadiene	ND	-	1.3	-	-	-	-
Hexachloroethane	ND	-	0.25	-	-	-	-
Indeno (1,2,3-cd) pyrene	ND	-	0.25	-	-	-	-
Isophorone	ND	-	0.25	-	-	-	-
2-Methylnaphthalene	ND	-	0.25	-	-	-	-
2-Methylphenol (o-Cresol)	ND	-	0.25	-	-	-	-
3 & 4-Methylphenol (m,p-Cresol)	ND	-	0.25	-	-	-	-
Naphthalene	ND	-	0.25	-	-	-	-
2-Nitroaniline	ND	-	1.3	-	-	-	-
3-Nitroaniline	ND	-	1.3	-	-	-	-
4-Nitroaniline	ND	-	1.3	-	-	-	-
Nitrobenzene	ND	-	0.25	-	-	-	-
2-Nitrophenol	ND	-	1.3	-	-	-	-
4-Nitrophenol	ND	3.49	1.3	5	-	70	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	3.52	0.25	5	-	70	47-108
Pentachlorophenol	ND	4.11	1.3	5	-	82	39-134
Phenanthrene	ND	-	0.25	-	-	-	-
Phenol	ND	3.73	0.25	5	-	75	49-107
Pyrene	ND	4.74	0.25	5	-	95	55-124
1,2,4-Trichlorobenzene	ND	4.02	0.25	5	-	81	51-121
2,4,5-Trichlorophenol	ND	-	0.25	-	-	-	-
2,4,6-Trichlorophenol	ND	-	0.25	-	-	-	-

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/4/16	**BatchID:**	127558
Date Analyzed:	10/4/16	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-127558 1610035-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	4.72	4.32		5	94	87	47-125
Phenol-d5	4.14	3.73		5	83	75	45-117
Nitrobenzene-d5	3.56	4.20		5	71	84	39-121
2-Fluorobiphenyl	5.01	3.84		5	100	77	35-120
2,4,6-Tribromophenol	3.49	4.07		5	70	81	32-111
4-Terphenyl-d14	5.60	4.11		5	112	82	32-128

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<20	NR	NR	-	NR	
4-Chloro-3-methylphenol	NR	NR		ND<20	NR	NR	-	NR	
2-Chlorophenol	NR	NR		ND<20	NR	NR	-	NR	
1,4-Dichlorobenzene	NR	NR		ND<20	NR	NR	-	NR	
2,4-Dinitrotoluene	NR	NR		ND<20	NR	NR	-	NR	
4-Nitrophenol	NR	NR		ND<100	NR	NR	-	NR	
N-Nitrosodi-n-propylamine	NR	NR		ND<20	NR	NR	-	NR	
Pentachlorophenol	NR	NR		ND<100	NR	NR	-	NR	
Phenol	NR	NR		ND<20	NR	NR	-	NR	
Pyrene	NR	NR		ND<20	NR	NR	-	NR	
1,2,4-Trichlorobenzene	NR	NR		ND<20	NR	NR	-	NR	
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	
Phenol-d5	NR	NR			NR	NR	-	NR	
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130116
Date Analyzed:	11/21/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130116 1611655-001DMS/MSD

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.30	0.10	4	-	107	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	3.81	4.08	4	ND	95	102	88-113	7.01	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130127
Date Analyzed:	11/21/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130127

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	3.79	0.10	4	-	95	88-113

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130239
Date Analyzed:	11/22/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130239

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	3.81	0.10	4	-	95	88-113

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130283
Date Analyzed:	11/23/16	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130283 1611A78-001DMS/MSD

QC Summary Report for E350.1 (Ammonia, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	4.10	0.10	4	-	103	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	4.11	3.88	4	0.26	96	91	88-113	5.82	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130218
Date Analyzed:	11/22/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB-130218

QC Summary Report for Alkalinity (Leachate)

Analyte	MB Result	RL			
Total Alkalinity	4.10	1.00	-	-	-
Carbonate	ND	1.00	-	-	-
Bicarbonate	4.10	1.00	-	-	-
Hydroxide	ND	1.00	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130224
Date Analyzed:	11/22/16	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB-130224

QC Summary Report for Alkalinity (Leachate)

Analyte	MB Result	RL			
Total Alkalinity	4.90	1.00	-	-	-
Carbonate	ND	1.00	-	-	-
Bicarbonate	4.90	1.00	-	-	-
Hydroxide	ND	1.00	-	-	-

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/28/16	**BatchID:**	130426
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130426

QC Summary Report for SM4500-Cl G (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.05	0.040	1	-	105	80-120

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/28/16	**BatchID:**	130427
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130427

QC Summary Report for SM4500-Cl G (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.06	0.040	1	-	106	80-120

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/28/16	**BatchID:**	130428
Date Analyzed:	11/28/16	**Extraction Method:**	SM4500-Cl G
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500-Cl G
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130428

QC Summary Report for SM4500-Cl G (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Chlorine	ND	1.05	0.040	1	-	105	80-120

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130176
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for Dissolved Oxygen (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609D47-008C	Dissolved Oxygen	mg DO/L @ °C	8.55 @ 22.0°C	1	8.54 @ 22.0°C	1	0.01	0.05

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130177
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for Dissolved Oxygen (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609E06-004C	Dissolved Oxygen	mg DO/L @ °C	8.44 @ 22.2°C	1	8.42 @ 22.2°C	1	0.02	0.05

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130178
Date Analyzed:	11/21/16	**Extraction Method:**	SM4500-O G-2001
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for Dissolved Oxygen (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609E06-009C	Dissolved Oxygen	mg DO/L @ °C	7.98 @ 22.3°C	1	7.99 @ 22.3°C	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/14/16	**BatchID:**	128438
Date Analyzed:	10/21/16	**Extraction Method:**	TM-7
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB-128438

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	-	200	-	-	-	-
Arsenic	ND	-	2.0	-	-	-	-
Calcium	ND	-	400	-	-	-	-
Chromium	ND	-	2.0	-	-	-	-
Copper	ND	-	2.0	-	-	-	-
Iron	ND	-	80	-	-	-	-
Lead	ND	-	2.0	-	-	-	-
Magnesium	ND	-	80	-	-	-	-
Manganese	ND	-	20	-	-	-	-
Mercury	ND	-	0.050	-	-	-	-
Selenium	ND	-	0.50	-	-	-	-
Uranium	ND	-	2.0	-	-	-	-
Zinc	ND	-	20	-	-	-	-

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130211
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130211

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.528	0.050	0.50	-	106	75-125
Antimony	ND	0.0534	0.00050	0.050	-	107	75-125
Arsenic	ND	0.0513	0.00050	0.050	-	103	75-125
Barium	ND	0.514	0.0050	0.50	-	103	75-125
Beryllium	ND	0.0516	0.00050	0.050	-	103	75-125
Cadmium	ND	0.0510	0.00025	0.050	-	102	75-125
Calcium	18.4	23.6	0.10	5	-	472, F2	75-125
Chromium	ND	0.0518	0.00050	0.050	-	104	75-125
Cobalt	ND	0.0466	0.00050	0.050	-	93	75-125
Copper	ND	0.0519	0.00050	0.050	-	104	75-125
Iron	ND	5.08	0.020	5	-	102	75-125
Lead	ND	0.0512	0.00050	0.050	-	102	75-125
Lithium	ND	0.0500	0.0050	0.050	-	100	75-125
Magnesium	0.0444	5.32	0.020	5	-	106	75-125
Manganese	ND	5.10	0.020	5	-	102	75-125
Mercury	ND	0.00137	0.000050	0.0012	-	110	75-125
Molybdenum	ND	0.0531	0.00050	0.050	-	106	75-125
Nickel	ND	0.0502	0.00050	0.050	-	100	75-125
Potassium	1.04	6.21	0.020	5	-	124	75-125
Selenium	ND	0.0514	0.00050	0.050	-	103	75-125
Silver	ND	0.0514	0.00050	0.050	-	103	75-125
Sodium	21.3	26.4	0.10	5	-	529, F2	75-125
Strontium	ND	0.513	0.020	0.50	-	103	75-125
Thallium	ND	0.0512	0.00050	0.050	-	102	75-125
Uranium	ND	0.0523	0.00050	0.050	-	105	75-125
Vanadium	ND	0.0520	0.00050	0.050	-	104	75-125
Zinc	ND	0.503	0.0050	0.50	-	101	75-125

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130212
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130212

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.528	0.050	0.50	-	106	75-125
Antimony	ND	0.0541	0.00050	0.050	-	108	75-125
Arsenic	ND	0.0528	0.00050	0.050	-	106	75-125
Barium	ND	0.515	0.0050	0.50	-	103	75-125
Beryllium	ND	0.0522	0.00050	0.050	-	104	75-125
Cadmium	ND	0.0516	0.00025	0.050	-	103	75-125
Calcium	18.6	23.7	0.10	5	-	474, F2	75-125
Chromium	ND	0.0523	0.00050	0.050	-	105	75-125
Cobalt	ND	0.0486	0.00050	0.050	-	97	75-125
Copper	ND	0.0511	0.00050	0.050	-	102	75-125
Iron	ND	5.11	0.020	5	-	102	75-125
Lead	ND	0.0520	0.00050	0.050	-	104	75-125
Lithium	ND	0.0506	0.0050	0.050	-	101	75-125
Magnesium	0.0453	5.35	0.020	5	-	107	75-125
Manganese	ND	5.18	0.020	5	-	104	75-125
Mercury	ND	0.00136	0.000050	0.0012	-	109	75-125
Molybdenum	ND	0.0533	0.00050	0.050	-	107	75-125
Nickel	ND	0.0509	0.00050	0.050	-	102	75-125
Potassium	1.06	6.25	0.020	5	-	125	75-125
Selenium	ND	0.0520	0.00050	0.050	-	104	75-125
Silver	ND	0.0518	0.00050	0.050	-	104	75-125
Sodium	21.4	26.5	0.10	5	-	531, F2	75-125
Strontium	ND	0.515	0.020	0.50	-	103	75-125
Thallium	ND	0.0514	0.00050	0.050	-	103	75-125
Uranium	ND	0.0521	0.00050	0.050	-	104	75-125
Vanadium	ND	0.0524	0.00050	0.050	-	105	75-125
Zinc	ND	0.509	0.0050	0.50	-	102	75-125

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130300
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130300

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.520	0.050	0.50	-	104	75-125
Antimony	ND	0.0539	0.00050	0.050	-	108	75-125
Arsenic	ND	0.0520	0.00050	0.050	-	104	75-125
Barium	ND	0.510	0.0050	0.50	-	102	75-125
Beryllium	ND	0.0516	0.00050	0.050	-	103	75-125
Cadmium	ND	0.0511	0.00025	0.050	-	102	75-125
Calcium	18.3	23.8	0.10	5	-	476, F2	75-125
Chromium	ND	0.0513	0.00050	0.050	-	103	75-125
Cobalt	ND	0.0481	0.00050	0.050	-	96	75-125
Copper	ND	0.0499	0.00050	0.050	-	100	75-125
Iron	ND	5.00	0.020	5	-	100	75-125
Lead	ND	0.0512	0.00050	0.050	-	102	75-125
Lithium	ND	0.0497	0.0050	0.050	-	99	75-125
Magnesium	0.0382	5.28	0.020	5	-	106	75-125
Manganese	ND	5.12	0.020	5	-	102	75-125
Mercury	ND	0.00142	0.000050	0.0012	-	114	75-125
Molybdenum	ND	0.0537	0.00050	0.050	-	107	75-125
Nickel	ND	0.0500	0.00050	0.050	-	100	75-125
Potassium	1.05	6.24	0.020	5	-	125	75-125
Selenium	ND	0.0518	0.00050	0.050	-	104	75-125
Silver	ND	0.0516	0.00050	0.050	-	103	75-125
Sodium	24.6	30.3	0.10	5	-	605, F2	75-125
Strontium	ND	0.510	0.020	0.50	-	102	75-125
Thallium	ND	0.0504	0.00050	0.050	-	101	75-125
Uranium	ND	0.0512	0.00050	0.050	-	102	75-125
Vanadium	ND	0.0514	0.00050	0.050	-	103	75-125
Zinc	ND	0.500	0.0050	0.50	-	100	75-125

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130301
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-MS2	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130301

QC Summary Report for Metals (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	0.515	0.050	0.50	-	103	75-125
Antimony	ND	0.0524	0.00050	0.050	-	105	75-125
Arsenic	ND	0.0521	0.00050	0.050	-	104	75-125
Barium	ND	0.498	0.0050	0.50	-	100	75-125
Beryllium	ND	0.0506	0.00050	0.050	-	101	75-125
Cadmium	ND	0.0506	0.00025	0.050	-	101	75-125
Calcium	18.1	23.9	0.10	5	-	478, F2	75-125
Chromium	ND	0.0510	0.00050	0.050	-	102	75-125
Cobalt	ND	0.0500	0.00050	0.050	-	100	75-125
Copper	ND	0.0499	0.00050	0.050	-	100	75-125
Iron	ND	4.95	0.020	5	-	99	75-125
Lead	ND	0.0508	0.00050	0.050	-	102	75-125
Lithium	ND	0.0497	0.0050	0.050	-	99	75-125
Magnesium	0.0403	5.22	0.020	5	-	104	75-125
Manganese	ND	5.04	0.020	5	-	101	75-125
Mercury	ND	0.00136	0.000050	0.0012	-	109	75-125
Molybdenum	ND	0.0518	0.00050	0.050	-	104	75-125
Nickel	ND	0.0500	0.00050	0.050	-	100	75-125
Potassium	1.05	6.15	0.020	5	-	123	75-125
Selenium	ND	0.0518	0.00050	0.050	-	104	75-125
Silver	ND	0.0503	0.00050	0.050	-	101	75-125
Sodium	24.4	30.4	0.10	5	-	608, F2	75-125
Strontium	ND	0.510	0.020	0.50	-	102	75-125
Thallium	ND	0.0500	0.00050	0.050	-	100	75-125
Uranium	ND	0.0514	0.00050	0.050	-	103	75-125
Vanadium	ND	0.0512	0.00050	0.050	-	102	75-125
Zinc	ND	0.499	0.0050	0.50	-	100	75-125

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130323
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	ORP	mV vs. NHE	295 @ 21.8°C	1	293 @ 21.9°C	1	0.873	<10

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130324
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-004C	ORP	mV vs. NHE	287 @ 22.0°C	1	284 @ 22.0°C	1	0.887	<10

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130325
Date Analyzed:	11/23/16	**Extraction Method:**	SM2580B-97
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-009C	ORP	mV vs. NHE	285 @ 22.0°C	1	286 @ 22.1°C	1	0.478	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130144
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for pH (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precisi on	Acceptance Criteria
1609D47-008C	pH	pH units @ 25°C	7.75	1	7.75	1	0	0.05

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130146
Date Analyzed:	11/21/16	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate		
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for pH (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precisi on	Acceptance Criteria
1609E06-004C	pH	pH units @ 25°C	7.96	1	7.96	1	0	0.05

(Cont.)

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/21/16
Date Analyzed: 11/21/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
BatchID: 130149
Extraction Method: SW9040
Analytical Method: SW9040

QC Summary Report for pH (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1609E06-009C	pH	pH units @ 25°C	7.93	1	7.92	1	0.01	0.05
1611A28-001D	pH	pH units @ 25°C	8.56	1	8.54	1	0.02	0.1

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130206
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130206

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	1.00	1.03	1	100	103	80-120	2.56	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130208
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130208

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	1.03	0.996	1	103	100	80-120	3.21	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130296
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130296

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	0.974	0.974	1	97	97	80-120	0	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130297
Date Analyzed:	11/29/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130297

QC Summary Report E200.7 (Phosphorus, Leachate)

Analyte	MB Result	RL			
Phosphorous	ND	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Phosphorous	1.04	0.980	1	104	98	80-120	4.81	20

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/2/16
Date Analyzed: 11/2/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
BatchID: 130486
Extraction Method: SM2510 B-1997
Analytical Method: SM2510 B-1997
Unit: µmhos/cm @ 25°C

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	227	1	227	1	0	<2

Client: Todd Groundwater
Date Prepared: 11/2/16
Date Analyzed: 11/2/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
BatchID: 130487
Extraction Method: SM2510 B-1997
Analytical Method: SM2510 B-1997
Unit: µmhos/cm @ 25°C

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-004C	220	1	220	1	0.05	<2

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/2/16	**BatchID:**	130488
Date Analyzed:	11/2/16	**Extraction Method:**	SM2510 B-1997
Instrument:	WetChem	**Analytical Method:**	SM2510 B-1997
Matrix:	Leachate	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-009C	221	1	221	1	0.05	<2

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/3/16	**BatchID:**	127525
Date Analyzed:	10/3/16	**Extraction Method:**	SM2510Bm-1997
Instrument:	WetChem	**Analytical Method:**	SM2510Bm-1997
Matrix:	Soil	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-001A	53.9	1	54.1	1	0.37	<5

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/3/16	**BatchID:**	127526
Date Analyzed:	10/3/16	**Extraction Method:**	SM2510Bm-1997
Instrument:	WetChem	**Analytical Method:**	SM2510Bm-1997
Matrix:	Soil	**Unit:**	µmhos/cm @ 25°C
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report for SM2510B (SC)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-002A	55.0	1	55.1	1	0.05	<5

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	10/21/16	**BatchID:**	128927
Date Analyzed:	11/1/16	**Extraction Method:**	TM-7
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/kg
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB-128927

QC Summary Report for Silicon

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	-	15	-	-	-	-

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130209
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130209

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.461	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.984	1.01	1	98	101	80-120	2.62	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130210
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130210

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.466	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.953	0.980	1	95	98	80-120	2.80	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130298
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130298

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.992	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.954	0.984	1	95	98	80-120	3.14	20

(Cont.)

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130299
Date Analyzed:	11/30/16	**Extraction Method:**	SW1312m
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130299

QC Summary Report for Silicon (Leachate)

Analyte	MB Result	RL			
Silicon	0.463	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Silicon	0.955	0.938	1	95	94	80-120	1.84	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	12/2/16	**BatchID:**	130712
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S⁻² D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130712 1609E06-004CMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.511	0.050	0.50	-	102	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.435	0.435	0.50	ND	87	87	80-120	0	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	12/2/16	**BatchID:**	130713
Date Analyzed:	12/2/16	**Extraction Method:**	SM4500-S⁻² D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130713 1609E06-009DMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.510	0.050	0.50	-	102	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.456	0.457	0.50	ND	91	91	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130130
Date Analyzed:	11/22/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130130 1611940-001DMS/MSD

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	10.9	0.30	12	-	91	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	12.9	12.5	12	1.9	92	88	50-132	3.53	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130201
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130201

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	RL			
TKN as N	ND	0.30	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TKN as N	12.0	12.1	12	100	101	90-110	0.832	20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/22/16	**BatchID:**	130203
Date Analyzed:	11/23/16	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS/LCSD-130203

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	RL			
TKN as N	ND	0.30	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TKN as N	11.4	12.2	12	95	102	90-110	7.53	20

Quality Control Report

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/23/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
BatchID: 130330
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report SM2130B (Turbidity, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609D47-008C	0.388	1	0.419	1	7.68	<10

Client: Todd Groundwater
Date Prepared: 11/23/16
Date Analyzed: 11/23/16
Instrument: WetChem
Matrix: Leachate
Project: SCVWO-1PR; McGlincey Ponds

WorkOrder: 1609E06
BatchID: 130331
Extraction Method: SM2130 B-2001
Analytical Method: SM2130 B-2001
Unit: NTU

QC Summary Report SM2130B (Turbidity, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-004C	0.289	1	0.294	1	1.72	<10

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130332
Date Analyzed:	11/23/16	**Extraction Method:**	SM2130 B-2001
Instrument:	WetChem	**Analytical Method:**	SM2130 B-2001
Matrix:	Leachate	**Unit:**	NTU
Project:	SCVWO-1PR; McGlincey Ponds		

QC Summary Report SM2130B (Turbidity, Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1609E06-009C	0.296	1	0.281	1	5.20	<10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130134
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130134

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.4	0.70	50	-	101	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/21/16	**BatchID:**	130136
Date Analyzed:	11/22/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130136

QC Summary Report for E415.3 (DOC, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Dissolved Organic Carbon	ND	50.3	0.70	50	-	101	80-120

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130279
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130279

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	40.4	2.6	36.7	-	110	80-120

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1609E06
Date Prepared:	11/23/16	**BatchID:**	130280
Date Analyzed:	11/23/16	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Leachate	**Unit:**	mg/L
Project:	SCVWO-1PR; McGlincey Ponds	**Sample ID:**	MB/LCS-130280

QC Summary Report for E415.3 (CO2, Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	40.5	2.6	36.7	-	110	80-120

QA/QC Officer

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609E06 **ClientCode: TEAC**

☐WaterTrax ☐WriteOn ☐EDF ☐Excel ☒EQuIS ☐Email ☐HardCopy ☐ThirdParty ☒J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609E06-001	S-5 09 ft Chem Dose 1	Soil	9/29/2016 13:30	☐	C		C	C				C	C	C	C	C
1609E06-001	S-5 09 ft Chem Dose 2	Soil	9/29/2016 13:30	☐	D		D	D				D	D	D	D	D
1609E06-001	Sonic-5 @ 09 ft	Soil	9/29/2016 13:30	☐		A			A							
1609E06-001	Sonic-5 @ 09 ft HH	Soil	9/29/2016 13:30	☐												
1609E06-002	S-5 25 ft Chem Dose 1	Soil	9/29/2016 14:00	☐	C		C	C				C	C	C	C	C
1609E06-002	S-5 25 ft Chem Dose 2	Soil	9/29/2016 14:00	☐	D		D	D				D	D	D	D	D
1609E06-002	Sonic-5 @ 25 ft	Soil	9/29/2016 14:00	☐		A			A							
1609E06-002	Sonic-5 @ 25 ft HH	Soil	9/29/2016 14:00	☐												
1609E06-003	S-5 50 ft Chem Dose 1	Soil	9/29/2016 14:45	☐	C		C	C				C	C	C	C	C
1609E06-003	S-5 50 ft Chem Dose 2	Soil	9/29/2016 14:45	☐	D		D	D				D	D	D	D	D
1609E06-003	Sonic-5 @ 50 ft	Soil	9/29/2016 14:45	☐		A			A							
1609E06-003	Sonic-5 @ 50 ft HH	Soil	9/29/2016 14:45	☐												
1609E06-004	S-5 65 ft Dose 1	Soil	9/29/2016 15:15	☐	C		C	C				C	C	C	C	C
1609E06-004	S-5 65 ft Dose 2	Soil	9/29/2016 15:15	☐	D		D	D				D	D	D	D	D
1609E06-004	Sonic-5 @ 65 ft	Soil	9/29/2016 15:15	☐		A			A							

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1609E06-004	Sonic-5 @ 65 ft HH	Soil	9/29/2016 15:15	☐												
1609E06-005	S-5 80 ft Chem Dose 1	Soil	9/29/2016 16:00	☐	C		C	C				C	C	C	C	C
1609E06-005	S-5 80 ft Chem Dose 2	Soil	9/29/2016 16:00	☐	D		D	D				D	D	D	D	D
1609E06-005	Sonic-5 @ 80 ft	Soil	9/29/2016 16:00	☐		A			A							
1609E06-005	Sonic-5 @ 80 ft HH	Soil	9/29/2016 16:00	☐												
1609E06-006	S-5 100 ft Chem Dose 1	Soil	9/29/2016 17:00	☐	C		C	C				C	C	C	C	C
1609E06-006	S-5 100 ft Chem Dose 2	Soil	9/29/2016 17:00	☐	D		D	D				D	D	D	D	D
1609E06-006	Sonic-5 @ 100 ft	Soil	9/29/2016 17:00	☐		A			A							
1609E06-006	Sonic-5 @ 100 ft HH	Soil	9/29/2016 17:00	☐												
1609E06-007	S-5 125 ft Chem Dose 1	Soil	9/30/2016 09:00	☐	C		C	C				C	C	C	C	C
1609E06-007	S-5 125 ft Chem Dose 2	Soil	9/30/2016 09:00	☐	D		D	D				D	D	D	D	D
1609E06-007	Sonic-5 @ 125 ft	Soil	9/30/2016 09:00	☐		A			A							
1609E06-007	Sonic-5 @ 125 ft HH	Soil	9/30/2016 09:00	☐												
1609E06-008	S-5 140 ft Chem Dose 1	Soil	9/30/2016 09:40	☐	C		C	C				C	C	C	C	C
1609E06-008	S-5 140 ft Chem Dose 2	Soil	9/30/2016 09:40	☐	D		D	D				D	D	D	D	D

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 3 of 3

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609E06-008	Sonic-5 @ 140 ft	Soil	9/30/2016 09:40	☐		A			A							
1609E06-008	Sonic-5 @ 140 ft HH	Soil	9/30/2016 09:40	☐												
1609E06-009	S-5 160 ft Chem Dose 1	Soil	9/30/2016 11:00	☐	C		C	C				C	C	C	C	C
1609E06-009	S-5 160 ft Chem Dose 2	Soil	9/30/2016 11:00	☐	D		D	D				D	D	D	D	D
1609E06-009	Sonic-5 @ 160 ft	Soil	9/30/2016 11:00	☐		A			A							
1609E06-009	Sonic-5 @ 160 ft HH	Soil	9/30/2016 11:00	☐												
1609E06-010	Sonic-5 8.5-9.0 ft	Soil	9/29/2016 13:30	☐						A	A					
1609E06-011	Sonic-5 @ 24.5-25.0 ft	Soil	9/29/2016 14:00	☐						A	A					
1609E06-012	Sonic-5 @ 50.0-50.5 ft	Soil	9/29/2016 14:05	☐						A	A					
1609E06-013	Sonic-5 @ 65.0-65.5 ft	Soil	9/29/2016 15:15	☐						A	A					
1609E06-014	Sonic-5 @ 80.0-80.5 ft	Soil	9/29/2016 16:00	☐						A	A					
1609E06-015	Sonic-5 @ 100.5-101.0 ft	Soil	9/29/2016 17:00	☐						A	A					
1609E06-016	Sonic-5 @ 125.0-125.5 ft	Soil	9/30/2016 09:15	☐						A	A					
1609E06-017	Sonic-5 @ 144.5-145.0 ft	Soil	9/30/2016 09:40	☐						A	A					
1609E06-018	Sonic-5 @ 164.5-165.0 ft	Soil	9/30/2016 11:00	☐						A	A					

Test Legend:

1	218_6_Leachate	2	300_0_S	3	300_1_Leachate	4	314_Leachate
5	314_S	6	8260B_S	7	8270_S	8	Alk_Leachate
9	AMMONIA_Leachate	10	CHLORINE_SM4500CLG_Leachate	11	cnsDOC_Leachate	12	cnsIC(CO2)_Leachate

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609E06-001	S-5 09 ft Chem Dose 1	Soil	9/29/2016 13:30	☐	C		C	C	C	C	C			C	C	C
1609E06-001	S-5 09 ft Chem Dose 2	Soil	9/29/2016 13:30	☐	D		D	D	D	D	D			D	D	D
1609E06-001	Sonic-5 @ 09 ft	Soil	9/29/2016 13:30	☐								A				
1609E06-001	Sonic-5 @ 09 ft HH	Soil	9/29/2016 13:30	☐		B							B			
1609E06-002	S-5 25 ft Chem Dose 1	Soil	9/29/2016 14:00	☐	C		C	C	C	C	C			C	C	C
1609E06-002	S-5 25 ft Chem Dose 2	Soil	9/29/2016 14:00	☐	D		D	D	D	D	D			D	D	D
1609E06-002	Sonic-5 @ 25 ft	Soil	9/29/2016 14:00	☐								A				
1609E06-002	Sonic-5 @ 25 ft HH	Soil	9/29/2016 14:00	☐		B							B			
1609E06-003	S-5 50 ft Chem Dose 1	Soil	9/29/2016 14:45	☐	C		C	C	C	C	C			C	C	C
1609E06-003	S-5 50 ft Chem Dose 2	Soil	9/29/2016 14:45	☐	D		D	D	D	D	D			D	D	D
1609E06-003	Sonic-5 @ 50 ft	Soil	9/29/2016 14:45	☐								A				
1609E06-003	Sonic-5 @ 50 ft HH	Soil	9/29/2016 14:45	☐		B							B			
1609E06-004	S-5 65 ft Dose 1	Soil	9/29/2016 15:15	☐	C		C	C	C	C	C			C	C	C
1609E06-004	S-5 65 ft Dose 2	Soil	9/29/2016 15:15	☐	D		D	D	D	D	D			D	D	D
1609E06-004	Sonic-5 @ 65 ft	Soil	9/29/2016 15:15	☐								A				

Test Legend:

13	DO_Leachate	14	METALSMS_HH_S	15	METALSMS_SPLP_S	16	ORP_Leachate
17	P_SPLP_Leachate	18	PH_Leachate	19	SC_Leachate	20	SC_S
21	SI_HH_S	22	SI_SPLP_LEACHATE	23	SULFIDE_Leachate	24	TKN_Leachate

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: 09/30/2016
Date Logged: 09/30/2016

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609E06-004	Sonic-5 @ 65 ft HH	Soil	9/29/2016 15:15	☐		B							B			
1609E06-005	S-5 80 ft Chem Dose 1	Soil	9/29/2016 16:00	☐	C		C	C	C	C	C			C	C	C
1609E06-005	S-5 80 ft Chem Dose 2	Soil	9/29/2016 16:00	☐	D		D	D	D	D	D			D	D	D
1609E06-005	Sonic-5 @ 80 ft	Soil	9/29/2016 16:00	☐								A				
1609E06-005	Sonic-5 @ 80 ft HH	Soil	9/29/2016 16:00	☐		B							B			
1609E06-006	S-5 100 ft Chem Dose 1	Soil	9/29/2016 17:00	☐	C		C	C	C	C	C			C	C	C
1609E06-006	S-5 100 ft Chem Dose 2	Soil	9/29/2016 17:00	☐	D		D	D	D	D	D			D	D	D
1609E06-006	Sonic-5 @ 100 ft	Soil	9/29/2016 17:00	☐								A				
1609E06-006	Sonic-5 @ 100 ft HH	Soil	9/29/2016 17:00	☐		B							B			
1609E06-007	S-5 125 ft Chem Dose 1	Soil	9/30/2016 09:00	☐	C		C	C	C	C	C			C	C	C
1609E06-007	S-5 125 ft Chem Dose 2	Soil	9/30/2016 09:00	☐	D		D	D	D	D	D			D	D	D
1609E06-007	Sonic-5 @ 125 ft	Soil	9/30/2016 09:00	☐								A				
1609E06-007	Sonic-5 @ 125 ft HH	Soil	9/30/2016 09:00	☐		B							B			
1609E06-008	S-5 140 ft Chem Dose 1	Soil	9/30/2016 09:40	☐	C		C	C	C	C	C			C	C	C
1609E06-008	S-5 140 ft Chem Dose 2	Soil	9/30/2016 09:40	☐	D		D	D	D	D	D			D	D	D

Test Legend:

13	DO_Leachate	14	METALSMS_HH_S	15	METALSMS_SPLP_S	16	ORP_Leachate
17	P_SPLP_Leachate	18	PH_Leachate	19	SC_Leachate	20	SC_S
21	SI_HH_S	22	SI_SPLP_LEACHATE	23	SULFIDE_Leachate	24	TKN_Leachate

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1609E06-008	Sonic-5 @ 140 ft	Soil	9/30/2016 09:40	☐								A				
1609E06-008	Sonic-5 @ 140 ft HH	Soil	9/30/2016 09:40	☐		B							B			
1609E06-009	S-5 160 ft Chem Dose 1	Soil	9/30/2016 11:00	☐	C		C	C	C	C	C			C	C	C
1609E06-009	S-5 160 ft Chem Dose 2	Soil	9/30/2016 11:00	☐	D		D	D	D	D	D			D	D	D
1609E06-009	Sonic-5 @ 160 ft	Soil	9/30/2016 11:00	☐								A				
1609E06-009	Sonic-5 @ 160 ft HH	Soil	9/30/2016 11:00	☐		B							B			
1609E06-010	Sonic-5 8.5-9.0 ft	Soil	9/29/2016 13:30	☐												
1609E06-011	Sonic-5 @ 24.5-25.0 ft	Soil	9/29/2016 14:00	☐												
1609E06-012	Sonic-5 @ 50.0-50.5 ft	Soil	9/29/2016 14:05	☐												
1609E06-013	Sonic-5 @ 65.0-65.5 ft	Soil	9/29/2016 15:15	☐												
1609E06-014	Sonic-5 @ 80.0-80.5 ft	Soil	9/29/2016 16:00	☐												
1609E06-015	Sonic-5 @ 100.5-101.0 ft	Soil	9/29/2016 17:00	☐												
1609E06-016	Sonic-5 @ 125.0-125.5 ft	Soil	9/30/2016 09:15	☐												
1609E06-017	Sonic-5 @ 144.5-145.0 ft	Soil	9/30/2016 09:40	☐												
1609E06-018	Sonic-5 @ 164.5-165.0 ft	Soil	9/30/2016 11:00	☐												

Test Legend:

13	**DO_Leachate**	14	**METALSMS_HH_S**	15	**METALSMS_SPLP_S**	16	**ORP_Leachate**
17	**P_SPLP_Leachate**	18	**PH_Leachate**	19	**SC_Leachate**	20	**SC_S**
21	**SI_HH_S**	22	**SI_SPLP_LEACHATE**	23	**SULFIDE_Leachate**	24	**TKN_Leachate**

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609E06-001	S-5 09 ft Chem Dose 1	Soil	9/29/2016 13:30	☐	C											
1609E06-001	S-5 09 ft Chem Dose 2	Soil	9/29/2016 13:30	☐	D											
1609E06-001	Sonic-5 @ 09 ft	Soil	9/29/2016 13:30	☐												
1609E06-001	Sonic-5 @ 09 ft HH	Soil	9/29/2016 13:30	☐												
1609E06-002	S-5 25 ft Chem Dose 1	Soil	9/29/2016 14:00	☐	C											
1609E06-002	S-5 25 ft Chem Dose 2	Soil	9/29/2016 14:00	☐	D											
1609E06-002	Sonic-5 @ 25 ft	Soil	9/29/2016 14:00	☐												
1609E06-002	Sonic-5 @ 25 ft HH	Soil	9/29/2016 14:00	☐												
1609E06-003	S-5 50 ft Chem Dose 1	Soil	9/29/2016 14:45	☐	C											
1609E06-003	S-5 50 ft Chem Dose 2	Soil	9/29/2016 14:45	☐	D											
1609E06-003	Sonic-5 @ 50 ft	Soil	9/29/2016 14:45	☐												
1609E06-003	Sonic-5 @ 50 ft HH	Soil	9/29/2016 14:45	☐												
1609E06-004	S-5 65 ft Dose 1	Soil	9/29/2016 15:15	☐	C											
1609E06-004	S-5 65 ft Dose 2	Soil	9/29/2016 15:15	☐	D											
1609E06-004	Sonic-5 @ 65 ft	Soil	9/29/2016 15:15	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609E06-004	Sonic-5 @ 65 ft HH	Soil	9/29/2016 15:15	☐												
1609E06-005	S-5 80 ft Chem Dose 1	Soil	9/29/2016 16:00	☐	C											
1609E06-005	S-5 80 ft Chem Dose 2	Soil	9/29/2016 16:00	☐	D											
1609E06-005	Sonic-5 @ 80 ft	Soil	9/29/2016 16:00	☐												
1609E06-005	Sonic-5 @ 80 ft HH	Soil	9/29/2016 16:00	☐												
1609E06-006	S-5 100 ft Chem Dose 1	Soil	9/29/2016 17:00	☐	C											
1609E06-006	S-5 100 ft Chem Dose 2	Soil	9/29/2016 17:00	☐	D											
1609E06-006	Sonic-5 @ 100 ft	Soil	9/29/2016 17:00	☐												
1609E06-006	Sonic-5 @ 100 ft HH	Soil	9/29/2016 17:00	☐												
1609E06-007	S-5 125 ft Chem Dose 1	Soil	9/30/2016 09:00	☐	C											
1609E06-007	S-5 125 ft Chem Dose 2	Soil	9/30/2016 09:00	☐	D											
1609E06-007	Sonic-5 @ 125 ft	Soil	9/30/2016 09:00	☐												
1609E06-007	Sonic-5 @ 125 ft HH	Soil	9/30/2016 09:00	☐												
1609E06-008	S-5 140 ft Chem Dose 1	Soil	9/30/2016 09:40	☐	C											
1609E06-008	S-5 140 ft Chem Dose 2	Soil	9/30/2016 09:40	☐	D											

Test Legend:

1	**TURBIDITY_Leachate**	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 3 of 3

WorkOrder: 1609E06 **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☒ EQuIS ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Report to:
Bill Motzer
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: bmotzer@toddgroundwater.com
cc/3rd Party: elin@toddgroundwater.com; ctaylor@toddg
PO:
ProjectNo: SCVWO-1PR; McGlincey Ponds

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **09/30/2016**
Date Logged: **09/30/2016**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1609E06-008	Sonic-5 @ 140 ft	Soil	9/30/2016 09:40	☐												
1609E06-008	Sonic-5 @ 140 ft HH	Soil	9/30/2016 09:40	☐												
1609E06-009	S-5 160 ft Chem Dose 1	Soil	9/30/2016 11:00	☐	C											
1609E06-009	S-5 160 ft Chem Dose 2	Soil	9/30/2016 11:00	☐	D											
1609E06-009	Sonic-5 @ 160 ft	Soil	9/30/2016 11:00	☐												
1609E06-009	Sonic-5 @ 160 ft HH	Soil	9/30/2016 11:00	☐												
1609E06-010	Sonic-5 8.5-9.0 ft	Soil	9/29/2016 13:30	☐												
1609E06-011	Sonic-5 @ 24.5-25.0 ft	Soil	9/29/2016 14:00	☐												
1609E06-012	Sonic-5 @ 50.0-50.5 ft	Soil	9/29/2016 14:05	☐												
1609E06-013	Sonic-5 @ 65.0-65.5 ft	Soil	9/29/2016 15:15	☐												
1609E06-014	Sonic-5 @ 80.0-80.5 ft	Soil	9/29/2016 16:00	☐												
1609E06-015	Sonic-5 @ 100.5-101.0 ft	Soil	9/29/2016 17:00	☐												
1609E06-016	Sonic-5 @ 125.0-125.5 ft	Soil	9/30/2016 09:15	☐												
1609E06-017	Sonic-5 @ 144.5-145.0 ft	Soil	9/30/2016 09:40	☐												
1609E06-018	Sonic-5 @ 164.5-165.0 ft	Soil	9/30/2016 11:00	☐												

Test Legend:

1	**TURBIDITY_Leachate**	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup 314.0_S (Perchlorate).; The following SampIDs: 001C, 001D, 002C, 002D, 003C, 003D, 004C, 004D, 005C, 005D, 006C, 006D, 007C, 007D, 008C, 008D, 009C, 009D contain testgroup Todd_Diss_study.

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-001A	Sonic-5 @ 09 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 13:30	5 days		☐	
			E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3⁻>			☐		5 days		☐	
1609E06-001B	Sonic-5 @ 09 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 13:30	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-001C	S-5 09 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 13:30	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-001D	S-5 09 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 13:30	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-002A	Sonic-5 @ 25 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 14:00	5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWO-1PR; McGlincey Ponds
Work Order: 1609E06
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-002A	Sonic-5 @ 25 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>	2	16OZ GJ	☐	9/29/2016 14:00	5 days		☐	
1609E06-002B	Sonic-5 @ 25 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 14:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-002C	S-5 25 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 14:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-002D	S-5 25 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 14:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-003A	Sonic-5 @ 50 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 14:45	5 days		☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWO-1PR; McGlincey Ponds
Work Order: 1609E06
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-003A	Sonic-5 @ 50 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>	2	16OZ GJ	☐	9/29/2016 14:45	5 days		☐	
1609E06-003B	Sonic-5 @ 50 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 14:45	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-003C	S-5 50 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 14:45	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
1609E06-003D	S-5 50 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 14:45	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-004A	Sonic-5 @ 65 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 15:15	5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-004A	Sonic-5 @ 65 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>	2	16OZ GJ	☐	9/29/2016 15:15	5 days		☐	
1609E06-004B	Sonic-5 @ 65 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 15:15	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-004C	S-5 65 ft Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 15:15	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
1609E06-004D	S-5 65 ft Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 15:15	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-005A	Sonic-5 @ 80 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 16:00	5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds

Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-005A	Sonic-5 @ 80 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3^{-}>	2	16OZ GJ	☐	9/29/2016 16:00	5 days		☐	
1609E06-005B	Sonic-5 @ 80 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 16:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-005C	S-5 80 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 16:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-005D	S-5 80 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 16:00	5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
1609E06-006A	Sonic-5 @ 100 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/29/2016 17:00	5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-006A	Sonic-5 @ 100 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>	2	16OZ GJ	☐	9/29/2016 17:00	5 days		☐	
1609E06-006B	Sonic-5 @ 100 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/29/2016 17:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-006C	S-5 100 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 17:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-006D	S-5 100 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/29/2016 17:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-007A	Sonic-5 @ 125 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/30/2016 9:00	5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-007A	Sonic-5 @ 125 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3$^-$>	2	16OZ GJ	☐	9/30/2016 9:00	5 days		☐	
1609E06-007B	Sonic-5 @ 125 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/30/2016 9:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-007C	S-5 125 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 9:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-007D	S-5 125 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 9:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-008A	Sonic-5 @ 140 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/30/2016 9:40	5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Bill Motzer
Contact's Email: bmotzer@toddgroundwater.com

Project: SCVWO-1PR; McGlincey Ponds
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT

Work Order: 1609E06
QC Level:
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-008A	Sonic-5 @ 140 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3⁻>	2	16OZ GJ	☐	9/30/2016 9:40	5 days		☐	
1609E06-008B	Sonic-5 @ 140 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/30/2016 9:40	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-008C	S-5 140 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 9:40	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-008D	S-5 140 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 9:40	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-009A	Sonic-5 @ 160 ft	Soil	E314.0 (Perchlorate)	2	16OZ GJ	☐	9/30/2016 11:00	5 days		☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWO-1PR; McGlincey Ponds
Work Order: 1609E06
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☑ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-009A	Sonic-5 @ 160 ft	Soil	E300.0 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as NO3^{-}>	2	16OZ GJ	☐	9/30/2016 11:00	5 days		☐	
1609E06-009B	Sonic-5 @ 160 ft HH	Soil	SW6010B (Silicon) (Hydroxylamine-Hydrochloride)	2	16OZ GJ	☐	9/30/2016 11:00	5 days		☐	
			E200.8 (Metals) (Hydroxylamine-Hydrochloride) <Aluminum, Arsenic, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Selenium, Silicon, Uranium, Zinc>			☐		5 days		☐	
1609E06-009C	S-5 160 ft Chem Dose 1	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 11:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-009D	S-5 160 ft Chem Dose 2	Soil	SM4500S2D (Total Sulfide)	2	Various	☐	9/30/2016 11:00	5 days		☐	
			SM2510B (Specific Conductivity)			☐		5 days		☐	
			E415.3 (IC as CO2)			☐		5 days		☐	
			Todd Dissolution Study			☐		5 days		☐	
1609E06-010A	Sonic-5 8.5-9.0 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 13:30	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Project: SCVWO-1PR; McGlincey Ponds
Work Order: 1609E06
Client Contact: Bill Motzer
QC Level:
Contact's Email: bmotzer@toddgroundwater.com
Comments: HH extractions for Metals and CR6 added 10/11/16 STAT
Date Logged: 9/30/2016

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609E06-011A	Sonic-5 @ 24.5-25.0 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 14:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-012A	Sonic-5 @ 50.0-50.5 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 14:05	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-013A	Sonic-5 @ 65.0-65.5 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 15:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-014A	Sonic-5 @ 80.0-80.5 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 16:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-015A	Sonic-5 @ 100.5-101.0 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/29/2016 17:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-016A	Sonic-5 @ 125.0-125.5 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/30/2016 9:15	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-017A	Sonic-5 @ 144.5-145.0 ft	Soil	SW8270C (SVOCs)	1	Brass tube 2"x6"	☐	9/30/2016 9:40	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
1609E06-018A	Sonic-5 @ 164.5-165.0 ft	Soil	SW8270C (SVOCs)	2	Brass tube 2"x6"	☐	9/30/2016 11:00	5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	

NOTES:
- **STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**
- **MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.**

MAI Work Order # 1609E06

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	2 Day Rush	3 Day Rush	STD	Quote #	
J-Flag / MDL	ESL	Cleanup Approved		Bottle Order #	
Delivery Format: GeoTracker EDF	PDF	EDD	Write On (DW)	EQuIS	

Report To: William E. Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510 747-6920
Project Name/#: SCVWD - IPR
Project Location: McGlincey Ponds PO #
Sampler Signature: William E.

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HH Extraction *	ClO4, NO3 *	SPLC Leachate *	VOC / SVOCs *
Sonic-5 @ 09 ft	09-29-16	1330	G	Soil	None	✓	✓	✓	
Sonic 5 @ 25 ft	09-29-16	1400	G	Soil	None	✓	✓	✓	
Sonic 5 @ 50 ft	09-29-16	1445	G	Soil	None	✓	✓	✓	
Sonic 5 @ 65 ft	09-29-16	1515	G	Soil	None	✓	✓	✓	
Sonic 5 @ 80 ft	09-29-16	1600	G	Soil	None	✓	✓	✓	
Sonic 5 @ 100 ft	09-29-16	1700	G	Soil	None	✓	✓	✓	
Sonic 5 @ 125 ft	09-30-16	0900	G	Soil	None	✓	✓	✓	
Sonic 5 @ 140 ft	09-30-16	0940	G	Soil	None	✓	✓	✓	
Sonic 5 @ 160 ft	09-30-16	1100	G	Soil	None	✓	✓	✓	

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	9/30/16	1415		9/30	1415
	9/30/16	1830			

Comments / Instructions
* see instructions sent to lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other
Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 1 of 2

General COC

MAI Work Order # ______________

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	☐	2 Day Rush	☐	3 Day Rush	☐	STD	☐	Quote #	
J-Flag / MDL	☐	ESL	☐	Cleanup Approved	☐			Bottle Order #	
Delivery Format: GeoTracker EDF	☐	PDF	☐	EDD	☐	Write On (DW)	☐	EQuIS	☐

Report To: William E, Motzer Bill To: TODD Groundwater
Company: TODD Groundwater
Email: bmotzer@toddgroundwater.com
Alt Email: Tele: 510-747-6920
Project Name/#: SCVWD-IPR
Project Location: McGlincey Ponds PO #
Sampler Signature: William E. Motzer

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	HH Extraction *	ClO4, NO3 *	SPLC Leachate *	VOCs/SVOCs *															
Sonic-5 8.5-9.0 ft	09-29-16	1330	BT	Soil	None				✓															
24.5-25.0 ft	09-29-16	1400	BT	Soil	None				✓															
50.0-50.5	09-29-16	1445	BT	Soil	None				✓															
65.0-65.5	09-29-16	1515	BT	Soil	None				✓															
80.0-80.5	09-29-16	1600	BT	Soil	None				✓															
100.5-101.0	09-29-16	1700	BT	Soil	None				✓															
Sonic-5 125.0-125.0	09-30-16	0915	BT	Soil	None				✓															
144.5-145.0	09-30-16	0940	BT	Soil	None				✓															
164.5-165.0	09-30-16	1100	BT	Soil	None				✓															

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	9/30/16	1415		9/30/16	1415
	9/30/16	1830	agustin V.		

Comments / Instructions
* see instructions sent to lab

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 2 of 2

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	**Todd Groundwater**	Date and Time Received:	**9/30/2016 18:30**
Project Name:	**SCVWO-1PR; McGlincey Ponds**	Date Logged:	**9/30/2016**
		Received by:	Agustina Venegas
WorkOrder №:	**1609E06** Matrix: Soil	Logged by:	Agustina Venegas
Carrier:	Benjamin Yslas (MAI Courier)		

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Sample IDs noted by Client on COC?	Yes ☑	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐	
Sampler's name noted on COC?	Yes ☑	No ☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	NA ☐
Sample/Temp Blank temperature	Temp: 3.4°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☐	No ☐	NA ☑
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

Comments:

Griselda Martinez

From: Edwin Lin <ELin@toddgroundwater.com>
Sent: Tuesday, November 08, 2016 9:38 AM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Only two (2) solutions are to be used for the SPLP…. Chemical dosage 1 and Chemical dosage 2. Raw water is not to be used.

Can you please give me a call this morning? I'd like to confirm your current status.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Tuesday, November 08, 2016 9:28 AM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>

Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

We are setting up to start the SPLPs this week. Just wanted to verify that we are preparing each sample (26 total) with 3 different SPLP solutions:

Raw water
Chemical dosage 1
Chemical dosage 2

This makes a total of 78 samples. Is this correct?

Griselda

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Thursday, November 03, 2016 5:27 PM
To: Griselda Martinez; 'Rosa Venegas'
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; 'Thomas Mohr'; Bill Motzer; Chad Taylor; Sally McCraven
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hi Griselda,

Yes for Sonic 4, the sample is from 50 feet and not 40 feet. Thanks for catching that.

As for the SPLP, there is no need to agitate before decanting. Agitation could increase the potential for increased turbidity to impact the analyses. And yes, collection in one larger container is fine. The 60 mL vial collection procedure was what you did on our last project, but it not critical.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 5:18 PM
To: Edwin Lin <ELin@toddgroundwater.com>; 'Rosa Venegas' <rosa@mccampbell.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>; 'Thomas Mohr' <tmohr@valleywater.org>; Bill Motzer <BMotzer@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>; Sally McCraven <SMcCraven@toddgroundwater.com>
Subject: RE: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Edwin,

I don't believe we have a sample for Sonic 4: 40, did you mean Sonic 4: 50 ft? Also another question about the procedure below from the SPLP SOP attachment received a while back for step 6.

6. After 7 days, the final leachate shall be collected in 60mL vials and centrifuged at 2,500 rotation per minute (rpm) for 12 hours. Are we agitating before decanting into the vials or do we decant the aqueous layer only (assuming the soil has settled)? Also do you think the sample in either of the above mentioned would be more homogenous if collected in 1 large container (1L) and then centrifuged, would it be ok to do that instead of individual 60ml vials?

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Edwin Lin [mailto:ELin@toddgroundwater.com]
Sent: Monday, October 10, 2016 3:30 PM
To: Rosa Venegas
Cc: 'Luisa Sangines'; 'Zachary Helsley'; 'MAI'; griselda.martinez@mccampbell.com; 'Ed Hamilton'; 'Angela Rydelius'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Lei Hong'; 'Vanessa De La Piedra'; 'Jeannine Larabee'; Thomas Mohr; Bill Motzer; Chad Taylor; Sally McCraven
Subject: Final instructions for modified Synthetic Precipitation Leaching Procedure (SPLP) and Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

Hello All,

Please find attached the final instructions for the proposed dissolution tests:
1. Modified U.S. EPA Method 1312 - Synthetic Precipitation Leaching Procedure (SPLP)
2. Hydroxylamine-Hydrochloride (Ha-HCl) Extraction Test

McCampbell Analytical will perform these tests for the 26 samples collected from Sonic Borings 1 through 5 listed below.

Final list of samples (depth intervals) for which the modified SPLP and Ha-HCl extraction tests shall be performed:

Sonic 1: 15, 20, 30 (3 samples)
Sonic 2: 10, 25, 35 (3 samples)
Sonic 3: 10, 15 (2 samples)
Sonic 4: 17, 23, 40, 65, 85, 95, 110, 125, 155 (9 samples)
Sonic 5: 9, 25, 50, 65, 80, 100, 125, 140, 160 (9 samples)

In summary, for the modified SPLP, McCampbell Analytical will perform the following:

1. Prepare two types of stabilized pilot recycled water as extraction fluid (using raw water provided by SCVWD and stabilization recipes/protocols as described in attachment

2. Analyze both stabilized pilot recycled water waters for selected constituents as described in attachment

3. For both types of stabilized water, use a 1-to-5 soil-to-extraction fluid ratio (160 gram-to-800 ml extraction fluid) (instead of 1-to-20 ratio)

4. Perform each test for 7 days (instead of 18 hours)

5. During the 7-day test, rotate the samples for 1-minute duration twice a day (i.e., morning and late afternoon)

6. Centrifuge the final fluid for 12 hours and filter sample through 0.45-micron filter paper

7. Analyze filtered leachate for selected constituents

Please let me know if you have any questions.

Thanks,
Ed

Edwin Lin, PG, CHg
Senior Hydrogeologist

TODD
GROUNDWATER

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
510.747.6920 x104
elin@toddgroundwater.com
www.toddgroundwater.com

BY RECEIVING THIS ELECTRONIC INFORMATION, including all attachments, the receiver agrees that this data may not be modified or transferred to any other party without the prior written consent of Todd Groundwater; that this electronic information may not necessarily represent the information shown on the recorded or approved final developments and/or documents; and that the receiver is responsible for verifying the information contained within the electronic data against the recorded or approved final documents. This privileged and confidential information is intended only for the use of the addressee(s) named above. Anyone who receives this communication in error should notify the sender immediately by reply e-mail.

From: Rosa Venegas [mailto:rosa@mccampbell.com]
Sent: Thursday, October 06, 2016 2:33 PM
To: Bill Motzer <BMotzer@toddgroundwater.com>; Edwin Lin <ELin@toddgroundwater.com>; Chad Taylor <CTaylor@toddgroundwater.com>
Cc: 'Luisa Sangines' <LSangines@valleywater.org>; 'Zachary Helsley' <ZHelsley@valleywater.org>; 'MAI' <main@mccampbell.com>; griselda.martinez@mccampbell.com; 'Ed Hamilton' <ed.hamilton@mccampbell.com>; 'Angela Rydelius' <angela@mccampbell.com>; 'Jennifer Lagerbom (Jennifer Lagerbom)' <jennifer@mccampbell.com>;

Sally McCraven <SMcCraven@toddgroundwater.com>; 'Lei Hong' <lhong@valleywater.org>; 'Vanessa De La Piedra' <vdelapiedra@valleywater.org>; 'Jeannine Larabee' <JLarabee@valleywater.org>
Subject: RE: Advanced Treated Water for Dissolution Study

Hello All,

We'd like to request an SOP on the leaching procedure that you would like us to follow once we receive the 60 gallons of water next week. At this point our instructions are to let the sample sit for ~ 7 days with no aggitation and/or occassional rotation.

Please provide more details in regards to the leaching procedure you'd like us to use such as:

- the frequency of aggitation
- the solid to water ratio
- are we running a turbidity study (Bill perhaps this is for you) to determine the best solid to water ratio given the changes in the leaching procedure from previous projects?
- would you like us to centrifuge the sample?

Let me know if there are any points I missed.

Rosa Venegas

Business Development Director
McCampbell Analytical, Inc.
1534 Willow Pass Road, Pittsburg CA 94565
Office: (925) 252-9262 *205 | Mobile: (925) 303-5928
rosa@mccampbell.com | www.mccampbell.com
www.linkedin.com/in/rosavenegas

McCampbell Analytical, Inc.
When Quality Counts

This message and or data is intended for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any use, dissemination, distribution, or copying of this communication is strictly prohibited.

Think before you print

Griselda Martinez

From:	Stratton, Rich <Rich.Stratton@hdrinc.com>
Sent:	Thursday, November 03, 2016 5:00 PM
To:	Griselda Martinez
Cc:	'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject:	RE: Initial parameters from permeate solution

Yes – please proceed with Case 1 and the adjusted Ca dose. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, November 03, 2016 10:30 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich, would you like us to proceed with Case 1, after the adjustment of the Ca? Are these the formulas we will be prepping in large scale?

Griselda

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Wednesday, November 02, 2016 4:07 PM
To: Griselda Martinez
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Griselda,

The actual values for Case 1 are reasonably close to the predicted values for alkalinity, pH and LSI. We are not sure why the measured hardness is coming up much lower than predicted values for Case 1. We would like to see 40 mg/L of hardness as $CaCO_3$ in the conditioned water. If the stock $CaCl_2$ solution is a little low on $CaCl_2$, please adjust as needed to get to the target hardness level.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, November 02, 2016 11:07 AM
To: Stratton, Rich
Cc: 'Rosa Venegas (Rosa Venegas)'; Daniel, Phillippe; CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; JLarabee@valleywater.org; 'Jennifer Lagerbom (Jennifer Lagerbom)'; heidi.fruhlinger@mccampbell.com; 'Angela Rydelius (Angela Rydelius)'; 'Melissa Valles (Melissa Valles)'; 'Ed Hamilton (Ed Hamilton)'; 'Sally McCraven'; 'Vanessa De La Piedra'; 'Thomas Mohr'; 'Edwin Lin'; 'Luisa Sangines'; 'Atlasi Daneshvar'; 'Zachary Helsley'; CTaylor@toddgroundwater.com
Subject: RE: Initial parameters from permeate solution

Rich,

We've obtained the measured parameters for Case 1. I've also included Case 2 for comparison. The LSI values have been revised for case 2. SM330B requires calculation and application of a different variable when pH is outside neutral range of 6-8.5. Also, our calculations are assuming standard temperature of 23C.

Case 1 Projected Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	32	39
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	8.5	8.5
LSI	-0.5 - +0.5	-0.09	-0.01

Case 1. Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		**45/5.38**	**45/14.45**
Alkalinity, mg/L as CaCO3	45	31.3	41.3
Hardness, mg/L as CaCO3	40	35.7	35
pH	6.5 – 8.5	8.65	8.66
TDS (based on conductivity)		92	100
LSI @ 23C by SM2330B	-0.5 - +0.5	**0**	**+0.05**

Case 2 Projected Values.

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	34	42
Hardness, mg/L as CaCO3	40	41	41
pH	6.5 – 8.5	9.07	8.97
LSI	-0.5 - +0.5	+0.50	+0.50

Case 2 Measured Values

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3
Chemical Dose, mg/L		45/6.8	45/17.85
Alkalinity, mg/L as CaCO3	45	38.5	47.9
Hardness, mg/L as CaCO3	40	37.5	37.5
pH	6.5 – 8.5	8.81	8.87
TDS (based on conductivity)		94	103
LSI @ 23C by SM2330B	-0.5 - +0.5	**+0.27**	**+0.42**

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Monday, October 24, 2016 2:22 PM
To: Griselda Martinez
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa

Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

The pH is a little higher than we would like to see. Please make a new batch with the Case 1 doses and let's see where it ends up.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Monday, October 24, 2016 2:00 PM
To: Stratton, Rich
Cc: 'Angela Rydelius (Angela Rydelius)'; 'Jennifer Lagerbom (Jennifer Lagerbom)'; 'Melissa Valles (Melissa Valles)'; 'Rosa Venegas (Rosa Venegas)'; heidi.fruhlinger@mccampbell.com; 'Ed Hamilton (Ed Hamilton)'; Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Rich,

We prepared a 300mL pilot sample using the recommended parameters in Case two

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	Vol needed for test
Chemical Dose, mg/L		45/6.8	45/17.85	100mL
Alkalinity, mg/L as CaCO3	45	34	42	50mL
Hardness, mg/L as CaCO3	40	41	41	40mL
pH	6.5 – 8.5	9.07	8.97	
LSI	0.5±	0.5	0.5	

Parameters for Alkalinity, hardness(Ca), pH and conductivity (for TDS) where re-measured in order to confirm expected results. Our findings are below. Would you like us to proceed preparing the solution in large scale?

Actual measurments after dosages:

Parameter	Target Level to Protect Mortar Lined Pipes	CaCl2 and NaOH	CaCl2 and Na2CO3	
Chemical Dose, mg/L		45/6.8	45/17.85	
Alkalinity, mg/L as CaCO3	45	38.5	47.9	
Hardness, mg/L as CaCO3	40	37.5	37.5	
pH	6.5 – 8.5	8.81	8.87	
TDS (based on conductivity)		94	103	

LSI (SM 2330B)	0.5±	0.06	0.22	

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 3:45 PM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton); Daniel, Phillippe
Subject: RE: Initial parameters from permeate solution

Griselda,

Here are the updated chemical doses based on not adding any chlorine.

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 3:16 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Melissa Valles (Melissa Valles); Rosa Venegas (Rosa Venegas); heidi.fruhlinger@mccampbell.com; Ed Hamilton (Ed Hamilton)
Subject: RE: Initial parameters from permeate solution

Ok thanks!

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 2:09 PM
To: Griselda Martinez
Subject: RE: Initial parameters from permeate solution

I'll need to update the tables since it makes a difference. I'll send them over by the end of the day. -Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Stratton, Rich
Sent: Thursday, October 20, 2016 2:05 PM
To: 'Griselda Martinez'
Subject: RE: Initial parameters from permeate solution

I spoke to Phillippe Daniel and he said we should assume there is no chlorine residual for the water being injected. - Thanks

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 M 916 215-6722

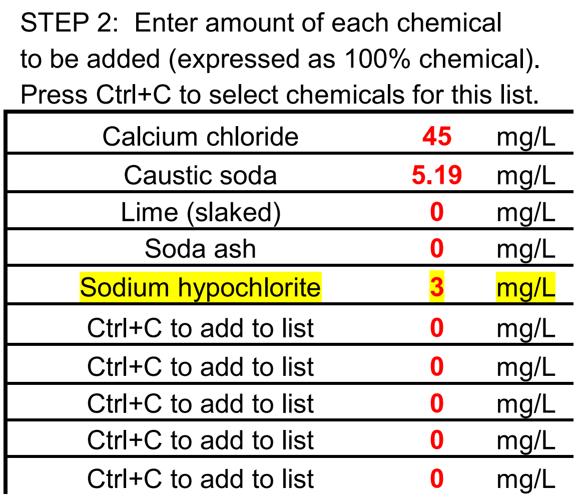
rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Thursday, October 20, 2016 10:25 AM
To: Stratton, Rich
Subject: RE: Initial parameters from permeate solution

Rich,

Thank you. Another question.. in the table for each case there is a chemical dosage for sodium hypochlorite. We are adding 3mg/L NaClO as well correct?



STEP 2: Enter amount of each chemical to be added (expressed as 100% chemical). Press Ctrl+C to select chemicals for this list.

Calcium chloride	45	mg/L
Caustic soda	5.19	mg/L
Lime (slaked)	0	mg/L
Soda ash	0	mg/L
Sodium hypochlorite	3	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L
Ctrl+C to add to list	0	mg/L

From: Stratton, Rich [mailto:Rich.Stratton@hdrinc.com]
Sent: Thursday, October 20, 2016 9:15 AM
To: Griselda Martinez
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com;

Phillippe Daniel (PDaniel@valleywater.org)
Subject: RE: Initial parameters from permeate solution

Griselda,

The updated RTW model runs and recommended dosing for conditioning the RO permeate are attached.

Please call if you have any questions or comments.

Thanks,

Rich Stratton, PE
Senior Project Manager

HDR
D 916 817-4819 **M** 916 215-6722

rich.stratton@hdrinc.com

hdrinc.com/follow-us

From: Griselda Martinez [mailto:Griselda@mccampbell.com]
Sent: Wednesday, October 19, 2016 2:05 PM
To: Stratton, Rich
Cc: Angela Rydelius (Angela Rydelius); Jennifer Lagerbom (Jennifer Lagerbom); Rosa Venegas (Rosa Venegas); Ed Hamilton (Ed Hamilton); CTaylor@toddgroundwater.com; BMotzer@toddgroundwater.com; ELin@toddgroundwater.com
Subject: Initial parameters from permeate solution

Rich,

These are the initial parameters for the permeate solution. LSI was not calculated as Calcium was ND below our MDL of < 0.077 mg/L. Please provide us the chemical dosages to be prepared.

Results:		Units	Test Method used
TDS	88	mg/L	SM2540C (TDS)
pH	6.94		SM4500H+B (pH)
total Cl	1.5	mg/L	SM4500-Cl E
Total Alkalinity (Bicarbonate)	25.3	mgCaCO3/L	SM2320B
SO4	0.31	mg/L	300.1
Dissolved CO2	2.9	mg/L	RSK175
Hardness Ca as CaCO3	ND<0.25	mgCaCO3/L	Ca measured E200.8, hardness calculated by SM2340B

Griselda Martinez
Technical Supervisor
McCampbell Analytical, Inc.
925-252-9262

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1703B71 A

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Edwin Lin
Project P.O.:
Project Name: 37809; SCVWD IPR

Project Received: 03/23/2017

Analytical Report reviewed & approved for release on 08/24/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: 37809; SCVWD IPR
WorkOrder: 1703B71 A

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Case Narrative

Client: Todd Groundwater
Project: 37809; SCVWD IPR
Work Order: 1703B71
July 10, 2017

Media Preparation

Two Leaching solutions were prepared (5L each) using the provided permeate water and chemical dosage specifications in table 1. With Client approval, NaHCO3 and CO2 via aeration were employed in order to meet the target pH values.

Table 1. Applied Dosage Table

Parameter	Case 1 - CaCl2 and Na2CO3	Case 2 - CaCl2 and Na2CO3
Chemical Dose, mg/L:		
NaHCO3	**12.3**	**16.6**
CaCl2	44	44
Na2CO3	**8**	**4**
CO2 (Aerated wih pump)		**28 min**

The two solutions where tested for the tabulated parameters before leaching procedure. The dosage and target lev where provided by **HDR**. Results were reported and approved via email prior to the commencement of the study.

Table 2. Desired Values for solutions 1 and 2

Parameter	Target Level to Protect Mortar Lined Pipes	Case 1 - CaCl2 and Na2CO3	Case 2 - CaCl2 and Na2CO3
Chemical Dose, mg/L:			
CO2		6.6	7.7
CaCl2		44	44
Na2CO3		20.3	20.4
Alkalinity, mg/L as CaCO3	45	45	45
Hardness, mg/L as CaCO3	40	40	40
pH	7.5-9	8.5	8
TDS (based on conductivity)			
LSI (SM 2330B)	0.5±	0.03	-0.47

Case Narrative

Client: Todd Groundwater **Work Order:** 1703B71
Project: 37809; SCVWD IPR July 10, 2017

Table 3. Measured Values for solutions 1 and 2 06/06/2017

Parameter	Target Level to Protect Mortar Lined Pipes	Case 1 - CaCl2 and Na2CO3	Case 2 - CaCl2 and Na2CO3
Chemical Dose, mg/L:			
NaHCO3		**12.3**	**16.6**
CaCl2		44	44
Na2CO3		**8**	**4**
Aerated with pump			**28 min**
Alkalinity, mg/L as CaCO3	45	43	39
Hardness, mg/L as CaCO3	40	40	40
pH	7.5-9	8.72	7.99
TDS (based on conductivity)		108	106
LSI (SM 2330B)	0.5±	0.28	-0.49

Case Narrative

Client: Todd Groundwater **Work Order:** 1703B71
Project: 37809; SCVWD IPR July 10, 2017

Extraction Procedure

1. 160 gr: 800mL of leaching solutions (1:5) was prepared in 1L HDPE containers for the client specified samples procedure start and stop date: 06/06/2017-06/13/2017

Morgan Park Mon. Well 131'
Morgan Park Mon. Well 195'
Morgan Park Mon. Well 283'

2. Samples were agitated for 1 minute two times a day as prescribed by the client for 7 days.
3. Leachate solution was decanted into 1L HDPE containers before being transferred into 60mL glass vials. Leacl centrifuged for 12hrs @ 1500 RPMs.
4. Leachate from each vial was filtered thru 0.45 micron filter.
5. Filtered Leachate was poured into the appropriate sample containers and distributed for the requested analy

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E218.6
Date Prepared:	6/15/17	**Analytical Method:**	E218.6
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00053**	0.00020	1	06/16/2017 13:46

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00057**	0.00020	1	06/16/2017 14:04

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0010**	0.00020	1	06/16/2017 14:21

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.0012**	0.00020	1	06/16/2017 14:38

Analyst(s): TD

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E218.6
Date Prepared:	6/15/17	**Analytical Method:**	E218.6
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Hexavalent chromium by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00063**	0.00020	1	06/16/2017 14:56

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**IC2**	**140509**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	**0.00054**	0.00020	1	06/16/2017 15:13

Analyst(s): TD

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E218.6
Date Prepared:	6/9/17	**Analytical Method:**	E218.6
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Dissolved Hexavalent chromium by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**IC2**	**140198**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.20	1	06/09/2017 09:47

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**IC2**	**140198**

Analytes	Result	RL	DF	Date Analyzed
Hexavalent chromium	ND	0.20	1	06/09/2017 10:04

Analyst(s): TD

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E300.1
Date Prepared:	6/16/17	**Analytical Method:**	E300.1
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 19:37
Nitrate as $NO3^-$	**9.7**	0.45	1	06/19/2017 19:37

Surrogates	REC (%)	Limits	
Formate	104	90-115	06/19/2017 19:37

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 20:20
Nitrate as $NO3^-$	**9.8**	0.45	1	06/19/2017 20:20

Surrogates	REC (%)	Limits	
Formate	104	90-115	06/19/2017 20:20

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 21:04
Nitrate as $NO3^-$	**9.7**	0.45	1	06/19/2017 21:04

Surrogates	REC (%)	Limits	
Formate	104	90-115	06/19/2017 21:04

Analyst(s): TD

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E300.1
Date Prepared:	6/16/17	**Analytical Method:**	E300.1
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Inorganic Anions by IC (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 21:48
Nitrate as NO3$^-$	**9.7**	0.45	1	06/19/2017 21:48

Surrogates	REC (%)	Limits		
Formate	104	90-115		06/19/2017 21:48

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 22:32
Nitrate as NO3$^-$	**9.9**	0.45	1	06/19/2017 22:32

Surrogates	REC (%)	Limits		
Formate	104	90-115		06/19/2017 22:32

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**2.2**	0.10	1	06/19/2017 23:16
Nitrate as NO3$^-$	**9.9**	0.45	1	06/19/2017 23:16

Surrogates	REC (%)	Limits		
Formate	104	90-115		06/19/2017 23:16

Analyst(s): TD

Analytical Report

Client:	Todd Groundwater		**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34		**Extraction Method:**	E300.1
Date Prepared:	6/19/17-6/20/17		**Analytical Method:**	E300.1
Project:	37809; SCVWD IPR		**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	06/19/2017 18:09
Chloride	**36**	1.0	10	06/20/2017 01:27
Fluoride	ND	0.10	1	06/19/2017 18:09
Nitrate as N	**2.2**	0.10	1	06/19/2017 18:09
Nitrate as $NO3^{-}$	**9.9**	0.44	1	06/19/2017 18:09
Nitrite as N	ND	0.10	1	06/19/2017 18:09
Nitrite as $NO2^{-}$	ND	0.33	1	06/19/2017 18:09
Nitrate & Nitrite as N	**2.2**	0.10	1	06/19/2017 18:09
Sulfate	**0.26**	0.10	1	06/19/2017 18:09

Surrogates	REC (%)	Limits	
Formate	105	85-115	06/19/2017 18:09

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**IC3**	**140561**

Analytes	Result	RL	DF	Date Analyzed
Bromide	ND	0.10	1	06/19/2017 18:53
Chloride	**36**	1.0	10	06/20/2017 02:11
Fluoride	ND	0.10	1	06/19/2017 18:53
Nitrate as N	**2.2**	0.10	1	06/19/2017 18:53
Nitrate as $NO3^{-}$	**9.9**	0.44	1	06/19/2017 18:53
Nitrite as N	ND	0.10	1	06/19/2017 18:53
Nitrite as $NO2^{-}$	ND	0.33	1	06/19/2017 18:53
Nitrate & Nitrite as N	**2.2**	0.10	1	06/19/2017 18:53
Sulfate	**0.26**	0.10	1	06/19/2017 18:53

Surrogates	REC (%)	Limits	
Formate	105	85-115	06/19/2017 18:53

Analyst(s): TD

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E350.1
Date Prepared:	6/9/17	**Analytical Method:**	E350.1
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Ammonia As Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**140236**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.31**	0.10	1	06/09/2017 17:05

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WC_SKALAR**	**140236**

Analytes	Result	RL	DF	Date Analyzed
Ammonia, total as N	**0.43**	0.10	1	06/09/2017 17:16

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2320 B-1997
Date Prepared:	6/6/17	**Analytical Method:**	SM2320 B
Project:	37809; SCVWD IPR	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**Titrino**	**140023**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**43.2**	B	1.00	1	06/06/2017 15:12
Carbonate	ND		1.00	1	06/06/2017 15:12
Bicarbonate	**43.2**	B	1.00	1	06/06/2017 15:12
Hydroxide	ND		1.00	1	06/06/2017 15:12

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**Titrino**	**140023**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Alkalinity	**39.4**	B	1.00	1	06/06/2017 15:14
Carbonate	ND		1.00	1	06/06/2017 15:14
Bicarbonate	**39.4**	B	1.00	1	06/06/2017 15:14
Hydroxide	ND		1.00	1	06/06/2017 15:14

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM4500-Cl G
Date Prepared:	7/3/17	**Analytical Method:**	SM4500-Cl G
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Total Chlorine by DPD Colorimetric Method

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**141692**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	**0.14**	0.040	1	07/03/2017 21:04

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**141692**

Analytes	Result	RL	DF	Date Analyzed
Total Chlorine	**0.13**	0.040	1	07/03/2017 21:05

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM4500-O G
Date Prepared:	6/8/17	**Analytical Method:**	SM4500-O G-2001
Project:	37809; SCVWD IPR	**Unit:**	mg DO/L @ °C

Dissolved Oxygen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WetChem**	**140197**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.74 @ 21.6 °C**	1.00	1	06/08/2017 22:40

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WetChem**	**140197**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Oxygen	**8.74 @ 21.4 °C**	1.00	1	06/08/2017 22:50

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 19:54
Arsenic	ND	0.00050	1	06/16/2017 19:54
Barium	**0.013**	0.0050	1	06/16/2017 19:54
Beryllium	ND	0.00050	1	06/16/2017 19:54
Cadmium	ND	0.00025	1	06/16/2017 19:54
Chromium	**0.00070**	0.00050	1	06/16/2017 19:54
Cobalt	ND	0.00050	1	06/16/2017 19:54
Copper	ND	0.00050	1	06/16/2017 19:54
Lead	ND	0.00050	1	06/16/2017 19:54
Mercury	ND	0.000050	1	06/16/2017 19:54
Molybdenum	**0.0053**	0.00050	1	06/16/2017 19:54
Nickel	ND	0.00050	1	06/16/2017 19:54
Selenium	ND	0.00050	1	06/16/2017 19:54
Silver	ND	0.00050	1	06/16/2017 19:54
Thallium	ND	0.00050	1	06/16/2017 19:54
Vanadium	**0.0027**	0.00050	1	06/16/2017 19:54
Zinc	ND	0.015	1	06/16/2017 19:54

Analyst(s): ND

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 20:18
Arsenic	ND	0.00050	1	06/16/2017 20:18
Barium	**0.013**	0.0050	1	06/16/2017 20:18
Beryllium	ND	0.00050	1	06/16/2017 20:18
Cadmium	ND	0.00025	1	06/16/2017 20:18
Chromium	**0.00062**	0.00050	1	06/16/2017 20:18
Cobalt	ND	0.00050	1	06/16/2017 20:18
Copper	ND	0.00050	1	06/16/2017 20:18
Lead	ND	0.00050	1	06/16/2017 20:18
Mercury	ND	0.000050	1	06/16/2017 20:18
Molybdenum	**0.0054**	0.00050	1	06/16/2017 20:18
Nickel	ND	0.00050	1	06/16/2017 20:18
Selenium	ND	0.00050	1	06/16/2017 20:18
Silver	ND	0.00050	1	06/16/2017 20:18
Thallium	ND	0.00050	1	06/16/2017 20:18
Vanadium	**0.0027**	0.00050	1	06/16/2017 20:18
Zinc	ND	0.015	1	06/16/2017 20:18

Analyst(s): ND

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 20:25
Arsenic	ND	0.00050	1	06/16/2017 20:25
Barium	**0.017**	0.0050	1	06/16/2017 20:25
Beryllium	ND	0.00050	1	06/16/2017 20:25
Cadmium	ND	0.00025	1	06/16/2017 20:25
Chromium	**0.0011**	0.00050	1	06/16/2017 20:25
Cobalt	ND	0.00050	1	06/16/2017 20:25
Copper	ND	0.00050	1	06/16/2017 20:25
Lead	ND	0.00050	1	06/16/2017 20:25
Mercury	ND	0.000050	1	06/16/2017 20:25
Molybdenum	**0.0036**	0.00050	1	06/16/2017 20:25
Nickel	ND	0.00050	1	06/16/2017 20:25
Selenium	ND	0.00050	1	06/16/2017 20:25
Silver	ND	0.00050	1	06/16/2017 20:25
Thallium	ND	0.00050	1	06/16/2017 20:25
Vanadium	**0.0024**	0.00050	1	06/16/2017 20:25
Zinc	ND	0.015	1	06/16/2017 20:25

Analyst(s): ND

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 20:31
Arsenic	ND	0.00050	1	06/16/2017 20:31
Barium	**0.017**	0.0050	1	06/16/2017 20:31
Beryllium	ND	0.00050	1	06/16/2017 20:31
Cadmium	ND	0.00025	1	06/16/2017 20:31
Chromium	**0.0012**	0.00050	1	06/16/2017 20:31
Cobalt	ND	0.00050	1	06/16/2017 20:31
Copper	ND	0.00050	1	06/16/2017 20:31
Lead	ND	0.00050	1	06/16/2017 20:31
Mercury	ND	0.000050	1	06/16/2017 20:31
Molybdenum	**0.0034**	0.00050	1	06/16/2017 20:31
Nickel	ND	0.00050	1	06/16/2017 20:31
Selenium	ND	0.00050	1	06/16/2017 20:31
Silver	ND	0.00050	1	06/16/2017 20:31
Thallium	ND	0.00050	1	06/16/2017 20:31
Vanadium	**0.0022**	0.00050	1	06/16/2017 20:31
Zinc	ND	0.015	1	06/16/2017 20:31

Analyst(s): ND

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 20:37
Arsenic	ND	0.00050	1	06/16/2017 20:37
Barium	**0.011**	0.0050	1	06/16/2017 20:37
Beryllium	ND	0.00050	1	06/16/2017 20:37
Cadmium	ND	0.00025	1	06/16/2017 20:37
Chromium	**0.00068**	0.00050	1	06/16/2017 20:37
Cobalt	ND	0.00050	1	06/16/2017 20:37
Copper	ND	0.00050	1	06/16/2017 20:37
Lead	**0.049**	0.00050	1	06/16/2017 20:37
Mercury	ND	0.000050	1	06/16/2017 20:37
Molybdenum	**0.0066**	0.00050	1	06/16/2017 20:37
Nickel	ND	0.00050	1	06/16/2017 20:37
Selenium	ND	0.00050	1	06/16/2017 20:37
Silver	ND	0.00050	1	06/16/2017 20:37
Thallium	ND	0.00050	1	06/16/2017 20:37
Vanadium	**0.0040**	0.00050	1	06/16/2017 20:37
Zinc	ND	0.015	1	06/16/2017 20:37

Analyst(s): ND

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW1312m
Date Prepared:	6/15/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Metals (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**ICP-MS2**	**140535**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.00050	1	06/16/2017 20:43
Arsenic	ND	0.00050	1	06/16/2017 20:43
Barium	**0.011**	0.0050	1	06/16/2017 20:43
Beryllium	ND	0.00050	1	06/16/2017 20:43
Cadmium	ND	0.00025	1	06/16/2017 20:43
Chromium	**0.00058**	0.00050	1	06/16/2017 20:43
Cobalt	ND	0.00050	1	06/16/2017 20:43
Copper	ND	0.00050	1	06/16/2017 20:43
Lead	ND	0.00050	1	06/16/2017 20:43
Mercury	ND	0.000050	1	06/16/2017 20:43
Molybdenum	**0.0075**	0.00050	1	06/16/2017 20:43
Nickel	ND	0.00050	1	06/16/2017 20:43
Selenium	ND	0.00050	1	06/16/2017 20:43
Silver	ND	0.00050	1	06/16/2017 20:43
Thallium	ND	0.00050	1	06/16/2017 20:43
Vanadium	**0.0042**	0.00050	1	06/16/2017 20:43
Zinc	ND	0.015	1	06/16/2017 20:43

Analyst(s): ND

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E200.8
Date Prepared:	6/6/17	**Analytical Method:**	E200.8
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**ICP-MS2**	**139999**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	50	1	06/10/2017 03:55
Antimony	ND	0.50	1	06/10/2017 03:55
Arsenic	ND	0.50	1	06/10/2017 03:55
Barium	ND	5.0	1	06/10/2017 03:55
Beryllium	ND	0.50	1	06/10/2017 03:55
Cadmium	ND	0.25	1	06/10/2017 03:55
Calcium	**16,000**	100	1	06/10/2017 03:55
Chromium	ND	0.50	1	06/10/2017 03:55
Cobalt	ND	0.50	1	06/10/2017 03:55
Copper	ND	2.0	1	06/10/2017 03:55
Iron	ND	20	1	06/10/2017 03:55
Lead	ND	0.50	1	06/10/2017 03:55
Lithium	ND	5.0	1	06/10/2017 03:55
Magnesium	**41**	20	1	06/10/2017 03:55
Manganese	ND	20	1	06/10/2017 03:55
Mercury	ND	0.050	1	06/10/2017 03:55
Molybdenum	ND	0.50	1	06/10/2017 03:55
Nickel	ND	0.50	1	06/10/2017 03:55
Potassium	**1100**	50	1	06/10/2017 03:55
Selenium	ND	0.50	1	06/10/2017 03:55
Silver	ND	0.19	1	06/10/2017 03:55
Sodium	**26,000**	100	1	06/10/2017 03:55
Strontium	ND	20	1	06/10/2017 03:55
Thallium	ND	0.50	1	06/10/2017 03:55
Uranium	ND	0.50	1	06/10/2017 03:55
Vanadium	ND	0.50	1	06/10/2017 03:55
Zinc	ND	15	1	06/10/2017 03:55

Surrogates	REC (%)	Limits	
Terbium	99	70-130	06/10/2017 03:55

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E200.8
Date Prepared:	6/6/17	**Analytical Method:**	E200.8
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**ICP-MS2**	**139999**

Analytes	Result	RL	DF	Date Analyzed
Aluminum	ND	50	1	06/10/2017 03:12
Antimony	ND	0.50	1	06/10/2017 03:12
Arsenic	ND	0.50	1	06/10/2017 03:12
Barium	ND	5.0	1	06/10/2017 03:12
Beryllium	ND	0.50	1	06/10/2017 03:12
Cadmium	ND	0.25	1	06/10/2017 03:12
Calcium	**16,000**	100	1	06/10/2017 03:12
Chromium	ND	0.50	1	06/10/2017 03:12
Cobalt	ND	0.50	1	06/10/2017 03:12
Copper	ND	2.0	1	06/10/2017 03:12
Iron	ND	20	1	06/10/2017 03:12
Lead	ND	0.50	1	06/10/2017 03:12
Lithium	ND	5.0	1	06/10/2017 03:12
Magnesium	**41**	20	1	06/10/2017 03:12
Manganese	ND	20	1	06/10/2017 03:12
Mercury	ND	0.050	1	06/10/2017 03:12
Molybdenum	ND	0.50	1	06/10/2017 03:12
Nickel	ND	0.50	1	06/10/2017 03:12
Potassium	**1200**	50	1	06/10/2017 03:12
Selenium	ND	0.50	1	06/10/2017 03:12
Silver	ND	0.19	1	06/10/2017 03:12
Sodium	**26,000**	100	1	06/10/2017 03:12
Strontium	ND	20	1	06/10/2017 03:12
Thallium	ND	0.50	1	06/10/2017 03:12
Uranium	ND	0.50	1	06/10/2017 03:12
Vanadium	ND	0.50	1	06/10/2017 03:12
Zinc	ND	15	1	06/10/2017 03:12

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	100	70-130	06/10/2017 03:12

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2580B
Date Prepared:	6/15/17	**Analytical Method:**	SM2580B-97
Project:	37809; SCVWD IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**472 @ 24.6 °C**	±10	1	06/15/2017 19:25

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**461 @ 24.3 °C**	±10	1	06/15/2017 19:35

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**460 @ 24.2 °C**	±10	1	06/15/2017 19:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**461 @ 23.9 °C**	±10	1	06/15/2017 19:45

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2580B
Date Prepared:	6/15/17	**Analytical Method:**	SM2580B-97
Project:	37809; SCVWD IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP) (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**462 @ 24 °C**	±10	1	06/15/2017 19:50

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140555**

Analytes	Result	Accuracy	DF	Date Analyzed
ORP	**465 @ 24 °C**	±10	1	06/15/2017 19:55

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2580B
Date Prepared:	6/15/17	**Analytical Method:**	SM2580B-97
Project:	37809; SCVWD IPR	**Unit:**	mV vs. NHE

Oxidation-Reduction Potential (ORP)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WetChem**	**140555**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
ORP	**455 @ 23.8 °C**	N	±10	1	06/15/2017 20:00

Analyst(s): AL

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WetChem**	**140555**

Analytes	Result	Qualifiers	Accuracy	DF	Date Analyzed
ORP	**466 @ 23.7 °C**	N	±10	1	06/15/2017 20:05

Analyst(s): AL

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM4500H+B-2000
Date Prepared:	6/6/17	**Analytical Method:**	SM4500H+B
Project:	37809; SCVWD IPR	**Unit:**	pH units @ 25°C

pH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WetChem**	**140022**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.72**	±0.05	1	06/06/2017 14:59
Temperature	**25.00**	±0	1	06/06/2017 14:59

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WetChem**	**140022**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.99**	±0.05	1	06/06/2017 15:02
Temperature	**25.00**	±0	1	06/06/2017 15:02

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW9040
Date Prepared:	6/15/17	**Analytical Method:**	SW9040
Project:	37809; SCVWD IPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.98**	±0.05	1	06/15/2017 16:07

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.11**	±0.05	1	06/15/2017 16:13

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.94**	±0.05	1	06/15/2017 16:16

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**7.96**	±0.05	1	06/15/2017 16:19

Analyst(s): RB

(Cont.)

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW9040
Date Prepared:	6/15/17	**Analytical Method:**	SW9040
Project:	37809; SCVWD IPR	**Unit:**	pH units @ 25°C

pH (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.10**	±0.05	1	06/15/2017 16:22

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140536**

Analytes	Result	Accuracy	DF	Date Analyzed
pH	**8.06**	±0.05	1	06/15/2017 16:25

Analyst(s): RB

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E200.7
Date Prepared:	6/13/17	**Analytical Method:**	E200.7
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Phosphorus

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**140383**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	50	1	06/21/2017 12:01

Surrogates	REC (%)	Limits	
Terbium	90	70-130	06/21/2017 12:01

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**ICP-JY**	**140383**

Analytes	Result	RL	DF	Date Analyzed
Phosphorous	ND	50	1	06/21/2017 11:51

Surrogates	REC (%)	Limits	
Terbium	95	70-130	06/21/2017 11:51

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2510 B-1997
Date Prepared:	6/8/17	**Analytical Method:**	SM2510 B-1997
Project:	37809; SCVWD IPR	**Unit:**	µmhos/cm @ 25°C

Specific Conductivity and Probe measured TDS at 25°C

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WetChem**	**140188**

Analytes	Result	RL	DF	Date Analyzed
Specific Conductivity	**220**	10.0	1	06/08/2017 21:25
Total Dissolved Solids (mg/L)	**108**	4.80	1	06/08/2017 21:25

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WetChem**	**140188**

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids (mg/L)	**106**	4.80	1	06/08/2017 21:30
Specific Conductivity	**217**	10.0	1	06/08/2017 21:30

Analyst(s): GM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E200.7
Date Prepared:	6/6/17	**Analytical Method:**	E200.7
Project:	37809; SCVWD IPR	**Unit:**	µg/L

Silicon

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**ICP-JY**	**140020**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**450**	50	1	06/12/2017 10:33

Surrogates	REC (%)	Limits	
Terbium	94	70-130	06/12/2017 10:33

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**ICP-JY**	**140020**

Analytes	Result	RL	DF	Date Analyzed
Silicon	**450**	50	1	06/12/2017 10:49

Surrogates	REC (%)	Limits	
Terbium	72	70-130	06/12/2017 10:49

Analyst(s): DB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM4500-S⁻² D-2000
Date Prepared:	6/8/17	**Analytical Method:**	SM4500 S-2 D
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**140176**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	06/08/2017 20:15

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**SPECTROPHOTOMETER**	**140176**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.050	1	06/08/2017 20:24

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	Saturation Index
Date Prepared:	NA	**Analytical Method:**	SM2330B
Project:	37809; SCVWD IPR	**Unit:**	unitless

Saturation Index Summary Report

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**Multiple Instruments**	**No Batch**

Analytes	Result	Units	DF	Date Analyzed
Saturation Index	**0.2752**			
pH	**8.72**	±, pH units @ 25°C	1	06/06/2017 14:59
Temperature	**25.00**	°C	1	06/06/2017 15:02
Calcium	**16**	mg/L	1	06/10/2017 03:55
Total Alkalinity	**43.2**	mg $CaCO_3$/L	1	06/06/2017 15:12
Total Dissolved Solids	**108**	mg/L	1	06/08/2017 21:25

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**Multiple Instruments**	**No Batch**

Analytes	Result	Units	DF	Date Analyzed
Saturation Index	**-0.4871**			
pH	**7.99**	±, pH units @ 25°C	1	06/06/2017 15:02
Temperature	**25.00**	°C	1	06/06/2017 14:59
Calcium	**16**	mg/L	1	06/10/2017 03:12
Total Alkalinity	**39.4**	mg $CaCO_3$/L	1	06/06/2017 15:14
Total Dissolved Solids	**106**	mg/L	1	06/08/2017 21:30

Angela Rydelius, Lab Manager

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E351.2
Date Prepared:	6/8/17	**Analytical Method:**	E351.2
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Total Kjeldahl Nitrogen

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WC_SKALAR**	**140187**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.34**	0.30	1	06/09/2017 16:14

Analyst(s): BM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WC_SKALAR**	**140187**

Analytes	Result	RL	DF	Date Analyzed
TKN as N	**0.45**	0.30	1	06/09/2017 16:18

Analyst(s): BM

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2130 B
Date Prepared:	6/15/17	**Analytical Method:**	SM2130 B-2001
Project:	37809; SCVWD IPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 1)	**1703B71-002A**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.751**	0.100	1	06/15/2017 16:30

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002B**	**Soil**	**03/10/2017 11:09**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.532**	0.100	1	06/15/2017 16:40

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 1)	**1703B71-003A**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.180**	0.100	1	06/15/2017 16:45

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003B**	**Soil**	**03/13/2017 16:04**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.246**	0.100	1	06/15/2017 16:50

Analyst(s): RB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SM2130 B
Date Prepared:	6/15/17	**Analytical Method:**	SM2130 B-2001
Project:	37809; SCVWD IPR	**Unit:**	NTU

Turbidity (Leachate)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 1)	**1703B71-004A**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.356**	0.100	1	06/15/2017 16:55

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004B**	**Soil**	**03/15/2017 12:37**	**WetChem**	**140537**

Analytes	Result	RL	DF	Date Analyzed
Turbidity	**0.412**	0.100	1	06/15/2017 17:00

Analyst(s): RB

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E415.3
Date Prepared:	6/14/17	**Analytical Method:**	E415.3
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Dissolved Organic Carbon (DOC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**140431**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	06/14/2017 13:13

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WC_CNS**	**140431**

Analytes	Result	RL	DF	Date Analyzed
Dissolved Organic Carbon	ND	0.70	1	06/14/2017 13:28

Analyst(s): TD

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	E415.3
Date Prepared:	6/9/17	**Analytical Method:**	E415.3
Project:	37809; SCVWD IPR	**Unit:**	mg/L

Inorganic Carbon as Carbon Dioxide

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 1 Initial	**1703B71-005A**	**Water**	**<Not Provided>**	**WC_CNS**	**140209**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**37**	3.7	1	06/09/2017 10:56

Analyst(s): TD

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Chem dose 2 Initial	**1703B71-005B**	**Water**	**<Not Provided>**	**WC_CNS**	**140209**

Analytes	Result	RL	DF	Date Analyzed
IC as CO2	**37**	3.7	1	06/09/2017 11:26

Analyst(s): TD

Quality Control Report

Client: Todd Groundwater
Date Prepared: 6/15/17
Date Analyzed: 6/15/17
Instrument: IC2
Matrix: Water
Project: 37809; SCVWD IPR

WorkOrder: 1703B71
BatchID: 140509
Extraction Method: E218.6
Analytical Method: E218.6
Unit: µg/L
Sample ID: MB/LCS-140509
1706612-001BMS/MSD

QC Summary Report for E218.6 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	26.6	0.20	25	-	107	90-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Hexavalent chromium	38.8	38.7	25	13.02	103	103	90-110	0	10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/9/17	**BatchID:**	140198
Date Analyzed:	6/9/17	**Extraction Method:**	E218.6
Instrument:	IC2	**Analytical Method:**	E218.6
Matrix:	Water	**Unit:**	µg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140198 1706393-002LMS/MSD

QC Summary Report for E218.6

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	25.5	0.20	25	-	102	90-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Hexavalent chromium	31.5	30.8	25	6.720	99	96	90-110	2.18	10

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 6/16/17
Date Analyzed: 6/16/17
Instrument: IC3
Matrix: Water
Project: 37809; SCVWD IPR

WorkOrder: 1703B71
BatchID: 140561
Extraction Method: E300.1
Analytical Method: E300.1
Unit: mg/L
Sample ID: MB/LCS-140561
1706747-001BMS/MSD

QC Summary Report for E300.1 (Leachate)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	0.951	0.10	1	-	95	85-115
Nitrate as NO3$^-$	ND	4.21	0.44	4.4	-	96	85-115
Surrogate Recovery							
Formate	0.09136	0.0847		0.10	91	85	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Nitrate as N	0.819	0.824	1	ND	82,F1	82,F1	85-115	0	15
Nitrate as NO3$^-$	3.63	3.65	4.4	ND	82,F1	83,F1	85-115	0.600	15
Surrogate Recovery									
Formate	0.0980	0.102	0.10		98	102	85-115	3.74	10

Quality Control Report

Client: Todd Groundwater
Date Prepared: 6/16/17
Date Analyzed: 6/16/17
Instrument: IC3
Matrix: Water
Project: 37809; SCVWD IPR

WorkOrder: 1703B71
BatchID: 140561
Extraction Method: E300.1
Analytical Method: E300.1
Unit: mg/L
Sample ID: MB/LCS-140561
1706747-001BMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Bromide	ND	1.01	0.10	1	-	101	85-115
Chloride	ND	0.938	0.10	1	-	94	85-115
Fluoride	ND	0.970	0.10	1	-	97	85-115
Nitrate as N	ND	0.951	0.10	1	-	95	85-115
Nitrate as $NO3^-$	ND	4.21	0.44	4.4	-	96	85-115
Nitrite as N	ND	0.918	0.10	1	-	92	85-115
Nitrite as $NO2^-$	ND	3.02	0.33	3.3	-	91	85-115
Sulfate	ND	0.929	0.10	1	-	93	85-115
Surrogate Recovery							
Formate	0.09136	0.0847		0.10	91	85	85-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Bromide	0.959	0.955	1	ND	88	88	85-115	0	15
Chloride	12.1	12.0	1	11	110	102	85-115	0.704	15
Fluoride	0.974	0.970	1	ND	88	88	85-115	0	15
Nitrate as N	0.819	0.824	1	ND	82,F1	82,F1	85-115	0	15
Nitrate as $NO3^-$	3.63	3.65	4.4	ND	82,F1	83,F1	85-115	0.600	15
Nitrite as N	0.906	0.889	1	ND	91	89	85-115	1.85	15
Nitrite as $NO2^-$	2.98	2.92	3.3	ND	90	89	85-115	1.85	15
Sulfate	9.98	9.90	1	8.8	117,F1	108	85-115	0.818	15
Surrogate Recovery									
Formate	0.0980	0.102	0.10		98	102	85-115	3.74	10

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/9/17	**BatchID:**	140236
Date Analyzed:	6/9/17	**Extraction Method:**	E350.1
Instrument:	WC_SKALAR	**Analytical Method:**	E350.1
Matrix:	Water	**Unit:**	mg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140236 1703B71-005AMS/MSD

QC Summary Report for E350.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ammonia, total as N	ND	3.97	0.10	4	-	99	88-113

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ammonia, total as N	4.28	4.44	4	0.31	99	103	88-113	3.84	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/6/17	**BatchID:**	140023
Date Analyzed:	6/6/17	**Extraction Method:**	SM2320 B-1997
Instrument:	Titrino	**Analytical Method:**	SM2320 B
Matrix:	Water	**Unit:**	mg $CaCO_3$/L
Project:	37809; SCVWD IPR		

QC Summary Report for Alkalinity

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1703B71-005B	39.4	1	43.3	1	9.43	<20

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/8/17	**BatchID:**	140197
Date Analyzed:	6/8/17	**Extraction Method:**	SM4500-O G
Instrument:	WetChem	**Analytical Method:**	SM4500-O G-2001
Matrix:	Water	**Unit:**	mg DO/L @ °C
Project:	37809; SCVWD IPR		

QC Summary Report for SM4500OG (Dissolved Oxygen)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1703B71-005A	8.74 @ 21.6 °C	1	8.73 @ 21.6 °C	1	0.01	0.05

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/15/17	**BatchID:**	140555
Date Analyzed:	6/15/17	**Extraction Method:**	SM2580B
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	37809; SCVWD IPR		

QC Summary Report for ORP (Leachate)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1703B71-002A	ORP	mV vs. NHE	472 @ 24.6 °C	1	466 @ 24.8 °C	1	1.28	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/15/17	**BatchID:**	140555
Date Analyzed:	6/15/17	**Extraction Method:**	SM2580B
Instrument:	WetChem	**Analytical Method:**	SM2580B-97
Matrix:	Leachate		
Project:	37809; SCVWD IPR		

QC Summary Report for ORP (MAI)

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1703B71-002A	ORP	mV vs. NHE	472 @ 24.6 °C	1	466 @ 24.8 °C	1	1.28	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/15/17	**BatchID:**	140536
Date Analyzed:	6/15/17	**Extraction Method:**	SW9040
Instrument:	WetChem	**Analytical Method:**	SW9040
Matrix:	Leachate	**Unit:**	pH units @ 25°C
Project:	37809; SCVWD IPR		

QC Summary Report for pH (Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	Precision	Acceptance Criteria
1703B71-002A	7.98	1	7.96	1	0.02	0.05

QA/QC Officer

Quality Control Report

Client: Todd Groundwater
Date Prepared: 6/13/17
Date Analyzed: 6/21/17
Instrument: ICP-JY
Matrix: Water
Project: 37809; SCVWD IPR

WorkOrder: 1703B71
BatchID: 140383
Extraction Method: E200.7
Analytical Method: E200.7
Unit: µg/L
Sample ID: MB/LCS-140383
1703B71-005BMS/MSD

QC Summary Report for Phosphorus

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Phosphorous	ND	945	50	1000	-	94	80-120
Surrogate Recovery							
Terbium	679	705		750	91	94	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Phosphorous	926	893	1000	ND	93	89	80-120	3.59	20
Surrogate Recovery									
Terbium	697	692	750		93	92	70-130	0.691	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Phosphorous	ND<250	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/6/17	**BatchID:**	140020
Date Analyzed:	6/12/17	**Extraction Method:**	E200.7
Instrument:	ICP-JY	**Analytical Method:**	E200.7
Matrix:	Water	**Unit:**	µg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140020 1703B71-005AMS/MSD

QC Summary Report for Silicon

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	452	50	500	-	90	80-120
Surrogate Recovery							
Terbium	556	610		750	74	81	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Silicon	963	922	500	450.3	103	94	80-120	4.44	20
Surrogate Recovery									
Terbium	660	694	750		88	93	70-130	5.08	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silicon	426	450.3	5.40	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/8/17	**BatchID:**	140176
Date Analyzed:	6/8/17	**Extraction Method:**	SM4500-S⁻² D-2000
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140176 1703B71-005AMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Sulfide	ND	0.501	0.050	0.50	-	100	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	0.468	0.468	0.50	ND	94	94	80-120	0	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/9/17	**BatchID:**	140187
Date Analyzed:	6/9/17	**Extraction Method:**	E351.2
Instrument:	WC_SKALAR	**Analytical Method:**	E351.2
Matrix:	Water	**Unit:**	mg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140187 1706400-001EMS/MSD

QC Summary Report for E351.2 (TKN as N)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TKN as N	ND	10.4	0.30	12	-	86	86-114

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TKN as N	9.40	9.87	12	ND	77	81	50-132	4.86	20

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/15/17	**BatchID:**	140537
Date Analyzed:	6/15/17	**Extraction Method:**	SM2130 B
Instrument:	WetChem	**Analytical Method:**	SM2130 B-2001
Matrix:	Leachate	**Unit:**	NTU
Project:	37809; SCVWD IPR		

QC Summary Report Turbidity (Leachate)

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1703B71-002A	0.751	1	0.737	1	1.88	<10

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	6/9/17	**BatchID:**	140209
Date Analyzed:	6/9/17	**Extraction Method:**	E415.3
Instrument:	WC_CNS	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-140209 1703B71-005AMS/MSD

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
IC as CO2	ND	39.9	3.7	36.7	-	109	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
IC as CO2	80.4	80.0	36.7	37	117	116	70-130	0.457	20

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1703B71 **A** **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☑ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Edwin Lin
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: elin@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: 37809; SCVWD IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **03/23/2017**
Date Logged: **03/23/2017**
Date Add-On: **06/06/2017**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1703B71-002	Morgan Park Mon. Well 131' (Chem dose 1)	Soil	3/10/2017 11:09	☐	A											
1703B71-002	Morgan Park Mon. Well 131' (Chem dose 2)	Soil	3/10/2017 11:09	☐	B											
1703B71-003	Morgan Park Mon. Well 195' (Chem dose 1)	Soil	3/13/2017 16:04	☐	A											
1703B71-003	Morgan Park Mon. Well 195' (Chem dose 2)	Soil	3/13/2017 16:04	☐	B											
1703B71-004	Morgan Park Mon. Well 283' (Chem dose 1)	Soil	3/15/2017 12:37	☐	A											
1703B71-004	Morgan Park Mon. Well 283' (Chem dose 2)	Soil	3/15/2017 12:37	☐	B											
1703B71-005	Chem dose 1 Initial	Water	<Not Provided>	☐												
1703B71-005	Chem dose 2 Initial	Water	<Not Provided>	☐												

Test Legend:

1	**TURBIDITY_Leachate**	**2**		**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Project Manager: Heidi Fruhlinger

Prepared by: Jena Alfaro

Add-On Prepared By: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TODD GROUNDWATER
Client Contact: Edwin Lin
Contact's Email elin@toddgroundwater.com

Project: 37809; SCVWD IPR
Comments:

Work Order: 1703B71
QC Level:
Date Logged: 3/23/2017
Date Add-On: 6/6/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1703B71-002A	Morgan Park Mon. Well 131' (Case 1)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/10/2017 11:09	5 days		☐	
1703B71-002B	Morgan Park Mon. Well 131' (Case 2)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/10/2017 11:09	5 days		☐	
1703B71-003A	Morgan Park Mon. Well 195' (Case 1)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/13/2017 16:04	5 days		☐	
1703B71-003B	Morgan Park Mon. Well 195' (Case 2)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/13/2017 16:04	5 days		☐	
1703B71-004A	Morgan Park Mon. Well 283' (Case 1)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/15/2017 12:37	5 days		☐	
1703B71-004B	Morgan Park Mon. Well 283' (Case 2)	Soil	SM2320B (Alkalinity)	1	16OZ GJ	3/15/2017 12:37	5 days		☐	
1703B71-005A	Case 1 Initial	Water	SM2510B (Specific Conductivity)	1	5G HDPE	<Not Provided>	5 days		☐	
			SM4500H+B (pH)				5 days		☐	
			E200.8 (Metals) <Calcium>				5 days		☐	
			SM2320B (Alkalinity)				5 days		☐	
1703B71-005B	Case 2 Initial	Water	SM2510B (Specific Conductivity)	1	5G HDPE	<Not Provided>	5 days		☐	
			SM4500H+B (pH)				5 days		☐	
			E200.8 (Metals) <Calcium>				5 days		☐	
			SM2320B (Alkalinity)				5 days		☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

MAI Work Order # 1703B71

6

McCAMPBELL ANALYTICAL, INC.

1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701
Telephone: (877) 252-9262 / Fax: (925) 252-9269
www.mccampbell.com main@mccampbell.com

CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush	☐	2 Day Rush	☐	3 Day Rush	☐	STD	●	Quote #
J-Flag / MDL	☐	ESL	☐	Cleanup Approved	☐		Bottle Order #
Delivery Format: PDF	☐	GeoTracker EDF	☐	EDD	●	Write On (DW)	☐	EQuIS	☐

Report To: Edwin Lin Bill To: Sally McCraven
Company: Todd Groundwater
Email: elin@toddgroundwater.com
Alt Email: Tele: 510-747-6920 x104
Project Name: SCVWD IPR Project #: 37809
Project Location: Morgan Park PO #
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	Modified SPLP (2 permeates)	HH Extraction
Morgan Park Mon. Well 131'	3/10/17	11:09	2	Soil	None	●	●
Morgan Park Mon. Well 195'	3/13/17	16:04	2	Soil	None	●	●
Morgan Park Mon. Well 283'	3/15/17	12:37	2	Soil	None	●	●

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
EDWIN LIN (TODD GROUNDWATER)	3/22/17	15:30	Fedex		
Fedex				3/23/17	934

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1703B71 B

Report Created for: Todd Groundwater

2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Project Contact: Edwin Lin
Project P.O.:
Project Name: 37809; SCVWD IPR

Project Received: 03/23/2017

Analytical Report reviewed & approved for release on 07/28/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

NELAP ACCREDITED TNI LABORATORY

Glossary of Terms & Qualifier Definitions

Client: Todd Groundwater
Project: 37809; SCVWD IPR
WorkOrder: 1703B71 B

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	SW3050B
Date Prepared:	7/26/17	**Analytical Method:**	SW6010B
Project:	37809; SCVWD IPR	**Unit:**	mg/kg

Silica

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002C**	**Soil**	**03/10/2017 11:09**	**ICP-JY**	**142613**

Analytes	Result	RL	DF	Date Analyzed
Silica	**7100**	51	1	07/26/2017 12:31

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003C**	**Soil**	**03/13/2017 16:04**	**ICP-JY**	**142613**

Analytes	Result	RL	DF	Date Analyzed
Silica	**8300**	510	10	07/26/2017 13:27

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004C**	**Soil**	**03/15/2017 12:37**	**ICP-JY**	**142613**

Analytes	Result	RL	DF	Date Analyzed
Silica	**6900**	51	1	07/26/2017 12:37

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	TM-7
Date Prepared:	7/18/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 131' (Chem dose 2)	**1703B71-002C**	**Soil**	**03/10/2017 11:09**	**ICP-MS1**	**142487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	**10,000**		200	1	07/25/2017 14:17
Arsenic	ND		2.0	1	07/25/2017 14:17
Calcium	**4000**		400	1	07/25/2017 14:17
Chromium	**33**		2.0	1	07/25/2017 14:17
Copper	**26**		2.0	1	07/25/2017 14:17
Iron	**21,000**		80	1	07/25/2017 14:17
Lead	**5.3**		2.0	1	07/25/2017 14:17
Magnesium	**7900**		80	1	07/25/2017 14:17
Manganese	**410**		80	1	08/15/2017 16:26
Mercury	ND	H	0.20	1	07/25/2017 14:17
Potassium	**330**		200	1	07/25/2017 14:17
Selenium	ND		2.0	1	07/25/2017 14:17
Sodium	ND		400	1	07/25/2017 14:17
Uranium	ND		2.0	1	07/25/2017 14:17
Zinc	**46**		20	1	07/25/2017 14:17

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater		**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34		**Extraction Method:**	TM-7
Date Prepared:	7/18/17		**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR		**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 195' (Chem dose 2)	**1703B71-003C**	**Soil**	**03/13/2017 16:04**	**ICP-MS1**	**142487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	**9800**		200	1	07/25/2017 13:53
Arsenic	ND		2.0	1	07/25/2017 13:53
Calcium	**3900**		400	1	07/25/2017 13:53
Chromium	**30**		2.0	1	07/25/2017 13:53
Copper	**26**		2.0	1	07/25/2017 13:53
Iron	**23,000**		80	1	07/25/2017 13:53
Lead	**7.7**		2.0	1	07/25/2017 13:53
Magnesium	**7100**		80	1	07/25/2017 13:53
Manganese	**490**		80	1	08/15/2017 16:01
Mercury	ND	H	0.20	1	07/25/2017 13:53
Potassium	**770**		200	1	07/25/2017 13:53
Selenium	ND		2.0	1	07/25/2017 13:53
Sodium	ND		400	1	07/25/2017 13:53
Uranium	ND		2.0	1	07/25/2017 13:53
Zinc	**60**		20	1	07/25/2017 13:53

Analyst(s): DB

(Cont.)

Analytical Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Received:	3/23/17 9:34	**Extraction Method:**	TM-7
Date Prepared:	7/18/17	**Analytical Method:**	SW6020
Project:	37809; SCVWD IPR	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Morgan Park Mon. Well 283' (Chem dose 2)	**1703B71-004C**	**Soil**	**03/15/2017 12:37**	**ICP-MS1**	**142487**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Aluminum	**9900**		200	1	07/25/2017 14:23
Arsenic	ND		2.0	1	07/25/2017 14:23
Calcium	**4200**		400	1	07/25/2017 14:23
Chromium	**52**		2.0	1	07/25/2017 14:23
Copper	**24**		2.0	1	07/25/2017 14:23
Iron	**21,000**		80	1	07/25/2017 14:23
Lead	**4.3**		2.0	1	07/25/2017 14:23
Magnesium	**8300**		80	1	07/25/2017 14:23
Manganese	**440**		80	1	08/15/2017 17:09
Mercury	ND	H	0.20	1	07/25/2017 14:23
Potassium	**300**		200	1	07/25/2017 14:23
Selenium	ND		2.0	1	07/25/2017 14:23
Sodium	ND		400	1	07/25/2017 14:23
Uranium	ND		2.0	1	07/25/2017 14:23
Zinc	**40**		20	1	07/25/2017 14:23

Analyst(s): DB

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	7/18/17 - 7/22/17	**BatchID:**	142487
Date Analyzed:	7/25/17	**Extraction Method:**	TM-7
Instrument:	ICP-MS1	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/kg
Project:	37809; SCVWD IPR	**Sample ID:**	MB/LCS-142487 1703B71-003CMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aluminum	ND	-	200	-	-	-	-
Arsenic	ND	-	2.0	-	-	-	-
Calcium	ND	-	400	-	-	-	-
Chromium	ND	-	2.0	-	-	-	-
Copper	ND	-	2.0	-	-	-	-
Iron	ND	21,600	80	20000	-	108	85-115
Lead	ND	-	2.0	-	-	-	-
Potassium	ND	-	200	-	-	-	-
Sodium	ND	-	400	-	-	-	-
Uranium	ND	-	2.0	-	-	-	-

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Iron	41,600	43,200	20000	22,550	95	103	75-125	3.78	20

(Cont.)

QA/QC Officer

Quality Control Report

Client:	Todd Groundwater	**WorkOrder:**	1703B71
Date Prepared:	7/26/17	**BatchID:**	142613
Date Analyzed:	7/26/17	**Extraction Method:**	SW3050B
Instrument:	ICP-JY	**Analytical Method:**	SW6010B
Matrix:	Soil	**Unit:**	mg/kg
Project:	37809; SCVWD IPR	**Sample ID:**	MB-142613

QC Summary Report for Silica

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Silicon	ND	-	24	-	-	-	-

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1703B71 **B** **ClientCode: TEAC**

☐ WaterTrax ☐ WriteOn ☐ EDF ☑ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ▨ J-flag
▨ Detection Summary ▨ Dry-Weight

Report to:
Edwin Lin
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501
(510) 747-6920 FAX: (510) 747-6921

Email: elin@toddgroundwater.com
cc/3rd Party:
PO:
ProjectNo: 37809; SCVWD IPR

Bill to:
Bill Motzer/ Accounts Payable
Todd Groundwater
2490 Mariner Square Loop, Suite 215
Alameda, CA 94501

Requested TAT: **5 days;**

Date Received: **03/23/2017**
Date Logged: **03/23/2017**
Date Add-On: **07/12/2017**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1703B71-002	Morgan Park Mon. Well 131' (Chem dose 2)	Soil	3/10/2017 11:09	☐	C	C										
1703B71-003	Morgan Park Mon. Well 195' (Chem dose 2)	Soil	3/13/2017 16:04	☐	C	C										
1703B71-004	Morgan Park Mon. Well 283' (Chem dose 2)	Soil	3/15/2017 12:37	☐	C	C										

Test Legend:

1	**METALSMS_HH_S**	**2**	**SILICA_HH_S [N]**	**3**		**4**	
5		**6**		**7**		**8**	
9		**10**		**11**		**12**	

Project Manager: Heidi Fruhlinger

Prepared by: Jena Alfaro

Add-On Prepared By: Rosa Venegas

Comments: HH extraction set up 07/12/17

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7F20043

Project: 1703B71

Attn: Jena Alfaro

Client: McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Report Date: 7/11/2017

Received Date: 6/20/2017

Turnaround Time: Normal

Phones: (925) 252-9262

Fax: (925) 252-9269

P.O. #:

Billing Code:

DoD-ELAP #L2457 • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH # • ISO 17025 #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Jena Alfaro,

Enclosed are the results of analyses for samples received 6/20/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Kim Tu

Kim G. Tu
Project Manager

Certificate of Analysis

FINAL REPORT

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Project Number: 1703B71

Project Manager: Jena Alfaro

Reported:
07/11/2017 14:57

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
Morgan Park Mon. Well 131' (Chem dose 1)	Client	7F20043-01	Water	06/10/17 11:09	
Morgan Park Mon. Well 131' (Chem dose 2)	Client	7F20043-02	Water	06/10/17 11:09	
Morgan Park Mon. Well 195' (Chem dose 1)	Client	7F20043-03	Water	06/13/17 16:04	
Morgan Park Mon. Well 195' (Chem dose 2)	Client	7F20043-04	Water	06/13/17 16:04	
Morgan Park Mon. Well 283' (Chem dose 1)	Client	7F20043-05	Water	06/15/17 12:37	
Morgan Park Mon. Well 283' (Chem dose 2)	Client	7F20043-06	Water	06/15/17 12:37	

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Project Number: 1703B71

Project Manager: Jena Alfaro

Reported:
07/11/2017 14:57

Sample Results

Sample: Morgan Park Mon. Well 131' (Chem dose 1)
7F20043-01 (Water)

Sampled: 06/10/17 11:09 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate by EPA 314.0						
Method: EPA 314.0	**Batch ID:** W7F1871	**Prepared:** 06/30/17 13:08				**Analyst:** CHJ
Perchlorate	ND	2.0	ug/l	1	07/07/17 09:43	

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Project Number: 1703B71

Project Manager: Jena Alfaro

Reported:
07/11/2017 14:57

Sample Results

(Continued)

Sample: Morgan Park Mon. Well 131' (Chem dose 2)
7F20043-02 (Water)

Sampled: 06/10/17 11:09 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate by EPA 314.0						
Method: EPA 314.0	**Batch ID:** W7F1871	**Prepared:** 06/30/17 13:08				**Analyst:** CHJ
Perchlorate	ND	2.0	ug/l	1	07/07/17 10:03	

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Project Number: 1703B71

Project Manager: Jena Alfaro

Reported:
07/11/2017 14:57

Sample Results

(Continued)

Sample: Morgan Park Mon. Well 195' (Chem dose 1)
7F20043-03 (Water)

Sampled: 06/13/17 16:04 by Client

Perchlorate by EPA 314.0

Method: EPA 314.0 **Batch ID:** W7F1871 **Prepared:** 06/30/17 13:08 **Analyst:** CHJ

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate	ND	2.0	ug/l	1	07/07/17 10:24	

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701

Project Number: 1703B71

Project Manager: Jena Alfaro

Reported:
07/11/2017 14:57

Sample Results

(Continued)

Sample: Morgan Park Mon. Well 195' (Chem dose 2)
7F20043-04 (Water)

Sampled: 06/13/17 16:04 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate by EPA 314.0						
Method: EPA 314.0	**Batch ID:** W7F1871	**Prepared:** 06/30/17 13:08				**Analyst:** CHJ
Perchlorate	ND	2.0	ug/l	1	07/07/17 10:44	

Sample Results

(Continued)

Sample: Morgan Park Mon. Well 283' (Chem dose 1)
7F20043-05 (Water)

Sampled: 06/15/17 12:37 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate by EPA 314.0						
Method: EPA 314.0	**Batch ID:** W7F1871	**Prepared:** 06/30/17 13:08				**Analyst:** CHJ
Perchlorate	ND	2.0	ug/l	1	07/07/17 11:05	

Sample Results

(Continued)

Sample: Morgan Park Mon. Well 283' (Chem dose 2)
7F20043-06 (Water)

Sampled: 06/15/17 12:37 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Perchlorate by EPA 314.0						
Method: EPA 314.0	**Batch ID:** W7F1871	**Prepared:** 06/30/17 13:08				**Analyst:** CHJ
Perchlorate	ND	2.0	ug/l	1	07/07/17 11:46	

Quality Control Results

Perchlorate by EPA 314.0

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W7F1871 - EPA 314.0										
Blank (W7F1871-BLK1)				**Prepared: 06/30/17 Analyzed: 07/07/17**						
Perchlorate	ND	2.0	ug/l							
LCS (W7F1871-BS1)				**Prepared: 06/30/17 Analyzed: 07/07/17**						
Perchlorate	8.85	2.0	ug/l	10.0		88	85-115			
Matrix Spike (W7F1871-MS1)	**Source: 7F14063-03**			**Prepared: 06/30/17 Analyzed: 07/07/17**						
Perchlorate	9.78	2.0	ug/l	10.0	1.80	80	80-120			
Matrix Spike Dup (W7F1871-MSD1)	**Source: 7F14063-03**			**Prepared: 06/30/17 Analyzed: 07/07/17**						
Perchlorate	9.77	2.0	ug/l	10.0	1.80	80	80-120	0.2	15	

Notes and Definitions

Item	Definition
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
Dil	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ) and Detection Limit for Reporting (DLR)
MDA	Minimum Detectable Activity
NR	Not Reportable
TIC	Tentatively Identified Compound (TIC) using mass spectrometry. The reported concentration is relative concentration based on the nearest internal standard. If the library search produces no matches at, or above 85%, the compound is reported as unknown.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.
An Absence of Total Coliform meets the drinking water standards as established by the California State Water Resources Control Board (SWRCB)
All results are expressed on wet weight basis unless otherwise specified.
All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS 002.